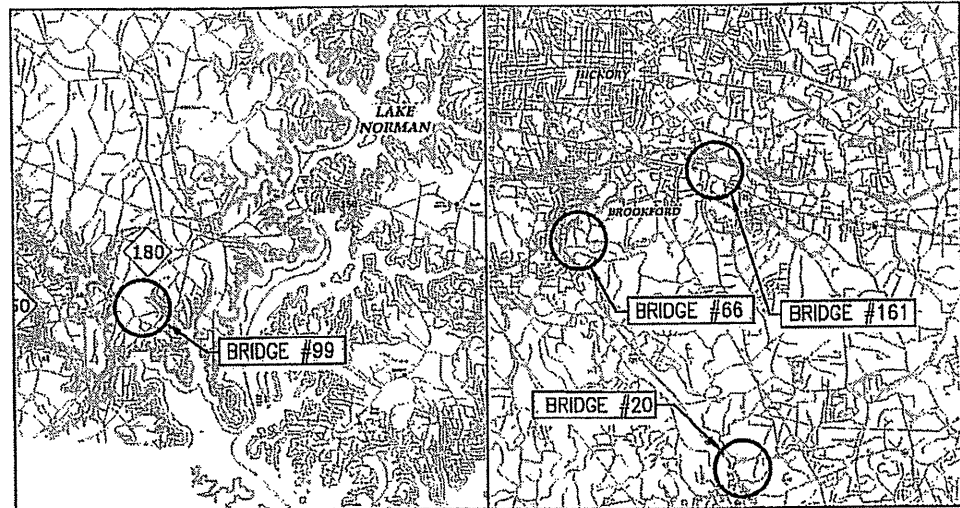


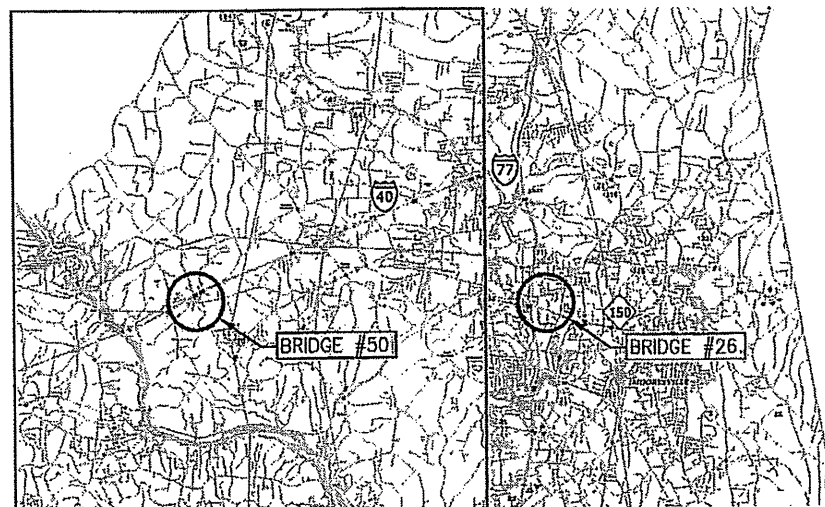
TIP PROJECT: WBS 17BP.12.P.3

CONTRACT: C203011



VICINITY MAP
CATAWBA COUNTY

VICINITY MAP
CATAWBA COUNTY



VICINITY MAP
IREDELL COUNTY

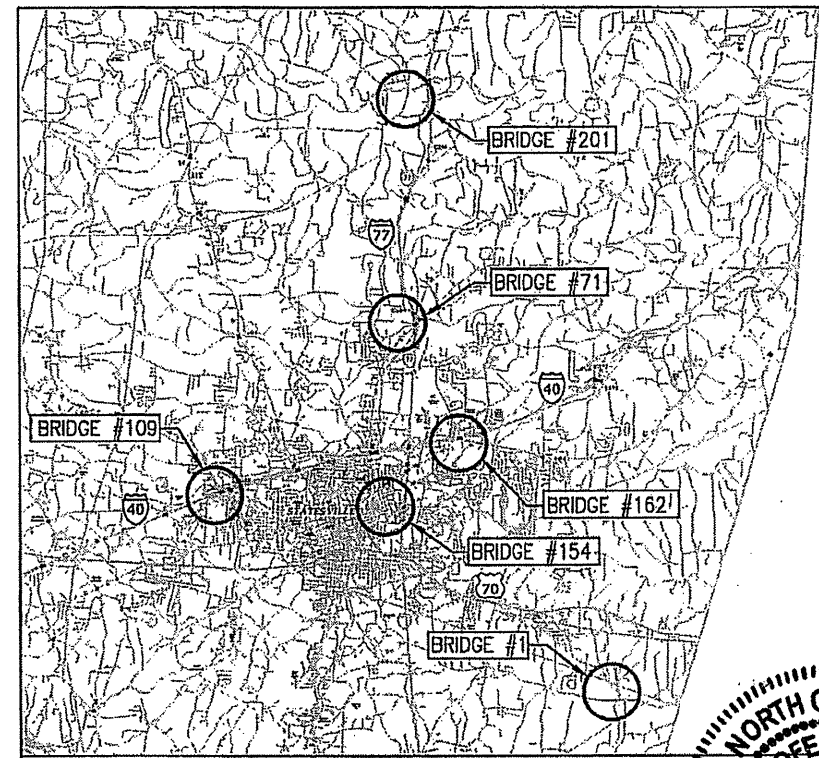
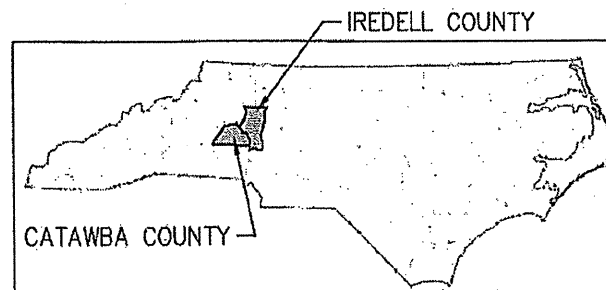
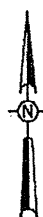
VICINITY MAP
IREDELL COUNTY

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS CATAWBA AND IREDELL COUNTIES

LOCATION: CATAWBA COUNTY
BRIDGE #20 ON NC10, OVER S. FORK CATAWBA RIVER.
BRIDGE #66 ON OLD NC127 (SR2959), OVER US321.
BRIDGE #99 ON NC150, OVER SEABOARD COASTLINE RR.
BRIDGE #161 ON SR1007, OVER I40.

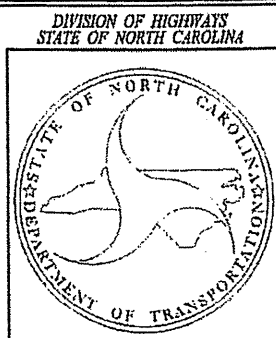
LOCATION: IREDELL COUNTY
BRIDGE #1 ON SR2362, OVER THIRD CREEK.
BRIDGE #26 ON NC150, OVER I77.
BRIDGE #50 ON SR1502, OVER I40.
BRIDGE #71 ON US21, OVER I77.
BRIDGE #109 ON I40 WBL, OVER US64 & NC90.
BRIDGE #154 ON SR2321, OVER I77 & SALISBURY CREEK.
BRIDGE #162 ON I40 WBL, OVER US64 WBL RAMP.
BRIDGE #201 ON I77 SBL, OVER PATTERSON CREEK.

TYPE OF WORK: BRIDGE PRESERVATION; EPOXY/STONE
OVERLAYS AND LATEX MODIFIED CONCRETE OVERLAYS



VICINITY MAP
IREDELL COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
NC	WBS 17BP.12.P.3	1	88
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.12.P.3		PE	
17BP.12.P.3		CONST	



DESIGN DATA	
BRIDGE #20 ADT 2009 = 9100	BRIDGE #50 ADT 2008 = 1900
BRIDGE #66 ADT 2009 = 5000	BRIDGE #71 ADT 2009 = 6850
BRIDGE #99 ADT 2009 = 9100	BRIDGE #109 ADT 2008 = 22000
BRIDGE #161 ADT 2009 = 29500	BRIDGE #154 ADT 2008 = 21000
BRIDGE #1 ADT 2005 = 1700	BRIDGE #162 ADT 2009 = 16000
BRIDGE #26 ADT 2008 = 38000	BRIDGE #201 ADT 2009 = 15000

STRUCTURE PROJECT LENGTH	
BRIDGE #20 = 0.053 MILES	BRIDGE #50 = 0.036 MILES
BRIDGE #66 = 0.058 MILES	BRIDGE #71 = 0.065 MILES
BRIDGE #99 = 0.029 MILES	BRIDGE #109 = 0.045 MILES
BRIDGE #161 = 0.056 MILES	BRIDGE #154 = 0.052 MILES
BRIDGE #1 = 0.036 MILES	BRIDGE #162 = 0.056 MILES
BRIDGE #26 = 0.046 MILES	BRIDGE #201 = 0.050 MILES

PLAN PREPARED BY: **ALPHA & OMEGA GROUP**
 CIVIL & STRUCTURAL ENGINEERS
 4801 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
 Phone 919 981 0310 Fax 919 981 0451
 Firm License No. C-1684 www.aogroup.com
 A & O PROJECT #: 2011.031

FOR: THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 2012 STANDARD SPECIFICATIONS

LETTING DATE:
MAY 15, 2012

NCDOT CONTACT: _____

R. LARSON, PE
PROJECT ENGINEER

RICK NELSON, PE
DESIGN ENGINEER

PROFESSIONAL SEAL
 NORTH CAROLINA
 ENGINEER
 TIMOTHY M. SHERRILL
 SEAL 18565
 03/07/12

PROFESSIONAL SEAL
 NORTH CAROLINA
 ENGINEER
 ROBERT C. LARSON
 SEAL 14014
 Structure only
 ROBERT C. LARSON, PE
 DESIGN ENGINEER
 9/5/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CATAWBA AND IREDELL COUNTIES

INDEX OF SHEETS

<u>SHEET NO.</u>	<u>TITLE</u>	<u>SHEET NO.</u>	<u>TITLE</u>
1	TITLE SHEET	TMP-1	TITLE SHEET, AND INDEX OF SHEETS
1A	INDEX OF SHEETS	TMP-1A	LIST OF ROADWAY STANDARD DRAWINGS AND LEGEND
2	SUMMARY OF QUANTITIES	TMP-2	GENERAL NOTES
S-1 THRU S-3	BRIDGE #20	TMP-3	PHASING
S-4 THRU S-6	BRIDGE #66	TMP-4 THRU TMP-4B	CATAWBA COUNTY BRIDGE #161
S-7 THRU S-9	BRIDGE #99	TMP-5 THRU TMP-5B	IREDELL COUNTY BRIDGE #26
S-10 THRU S-12	BRIDGE #161	TMP-6 THRU TMP-6B	IREDELL COUNTY BRIDGE #71
S-13 THRU S-15	BRIDGE #1	TMP-7 THRU TMP-7A	IREDELL COUNTY BRIDGE #109
S-16 THRU S-25	BRIDGE #26	TMP-8 THRU TMP-8B	IREDELL COUNTY BRIDGE #154
S-26 THRU S-34	BRIDGE #50	TMP-9 THRU TMP-9A	IREDELL COUNTY BRIDGE #162
S-35 THRU S-38	BRIDGE #71		
S-39 THRU S-47	BRIDGE #109		
S-48 THRU S-59	BRIDGE #154		
S-60 THRU S-62	BRIDGE #162		
S-63 THRU S-65	BRIDGE #201		

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

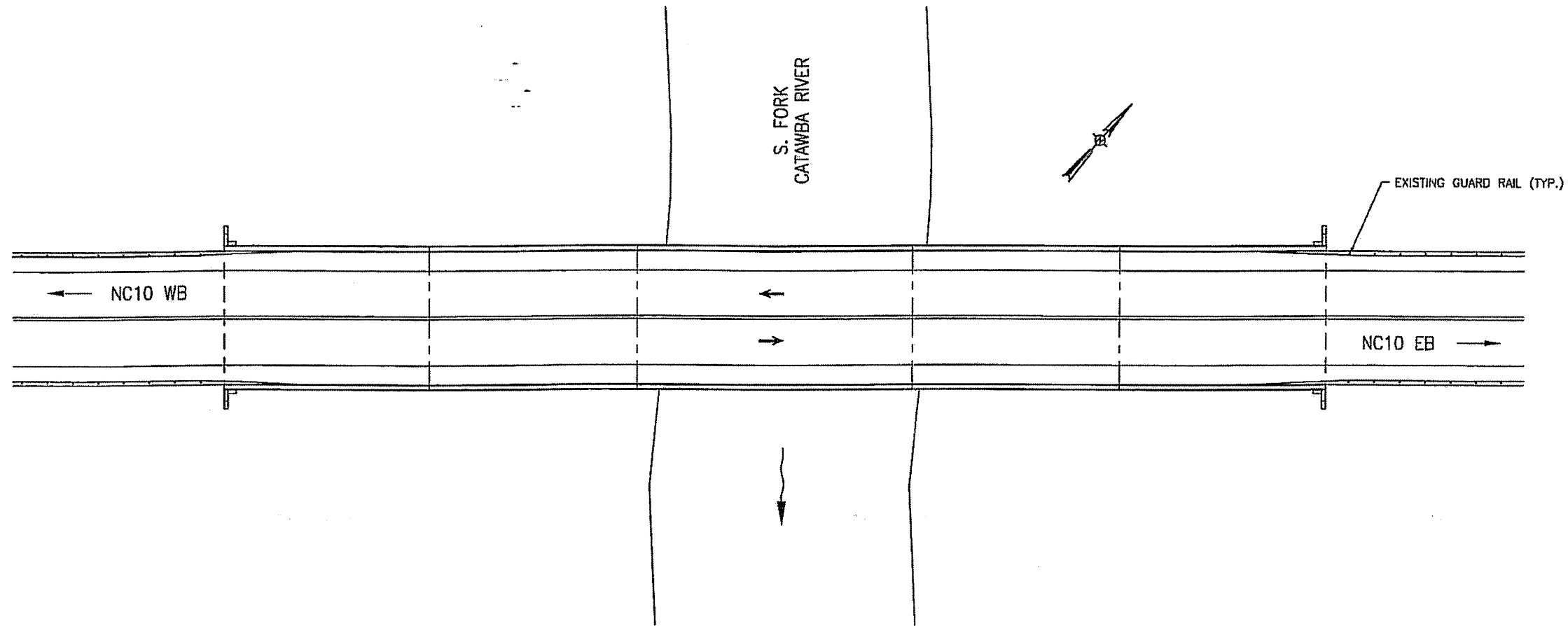
CATAWBA AND IREDELL COUNTIES

STATE	PROJECT REFERENCE NO.	SHEET NO.
NC	WBS 17BP.12.P.3	2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203011

SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION					
1330000000-E	607	4,268	SY	INCIDENTAL MILLING					
1519000000-E	610	357	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	4905000000-N	1253	242	EA	SNOWPLOWABLE PAVEMENT MARKERS
1575000000-E	620	21	TON	ASPHALT BINDER FOR PLANT MIX	8161000000-E	420	104,817	SF	GROOVING BRIDGE FLOORS
4400000000-E	1110	10	SF	WORK ZONE SIGNS (STATIONARY)	8660000000-E	SP	16	CF	CONCRETE REPAIRS
4405000000-E	1110	1,035	SF	WORK ZONE SIGNS (PORTABLE)	8664000000-E	SP	365	CF	SHOTCRETE REPAIRS
4410000000-E	1110	32	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	8692000000-N	SP	Lump Sum		FOAM JOINT SEALS
4415000000-N	1115	4	EA	FLASHING ARROW BOARD	8881000000-E	SP	569	CY	GENERIC STRUCTURE ITEM LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH
4420000000-N	1120	5	EA	PORTABLE CHANGEABLE MESSAGE SIGN	8892000000-E	SP	524	SF	GENERIC STRUCTURE ITEM CLASS II CONCRETE DECK REPAIRS FOR EPOXY OVERLAY
4430000000-N	1130	500	EA	DRUMS	8892000000-E	SP	58,458	SF	GENERIC STRUCTURE ITEM PLACEMENT OF EPOXY OVERLAY
4435000000-N	1135	100	EA	CONES	8893000000-E	SP	12,288	SY	GENERIC STRUCTURE ITEM HYDRO-DEMOLITION OF BRIDGE DECK
4445000000-E	1145	72	LF	BARRICADES (TYPE III)	8893000000-E	SP	12,304	SY	GENERIC STRUCTURE ITEM PLACING & FINISHING OF LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH
4450000000-N	1150	1,344	HR	FLAGGER	8893000000-E	SP	12,288	SY	GENERIC STRUCTURE ITEM SCARIFYING BRIDGE DECK
4480000000-N	1165	1	EA	TMA	8897000000-N	SP	96	EA	GENERIC STRUCTURE ITEM CLEAN & PAINT BEARINGS
4510000000-N	SP	3,228	HR	LAW ENFORCEMENT					
4710000000-E	1205	216	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)					
4805000000-N	1205	55	EA	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (II)					
4810000000-E	1205	24,185	LF	PAINT PAVEMENT MARKING LINES (4")					
4840000000-N	1205	16	EA	PAINT PAVEMENT MARKING CHARACTER					
4845000000-N	1205	34	EA	PAINT PAVEMENT MARKING SYMBOL					
4847000000-E	1205	12,905	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)					
4847100000-E	1205	3,075	LF	POLYUREA PAVEMENT MARKING LINES (6", *****) (HIGHLY REFLECTIVE ELEMENTS)					
4847110000-E	1205	150	LF	POLYUREA PAVEMENT MARKING LINES (8", *****) (HIGHLY REFLECTIVE ELEMENTS)					



BRIDGE 170020 ON NC10

LOCATION: BRIDGE 170020, NC10 OVER S. FORK CATAWBA RIVER, 1.0 MILE EAST OF JUNCTION WITH SR100B.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-168# www.aogroup.com
A&O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3

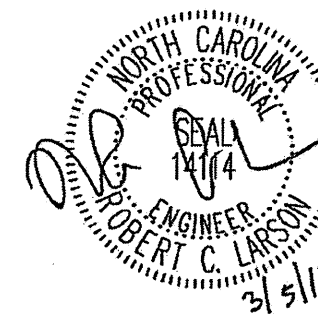
CATAWBA COUNTY

BRIDGE NO. 170020

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

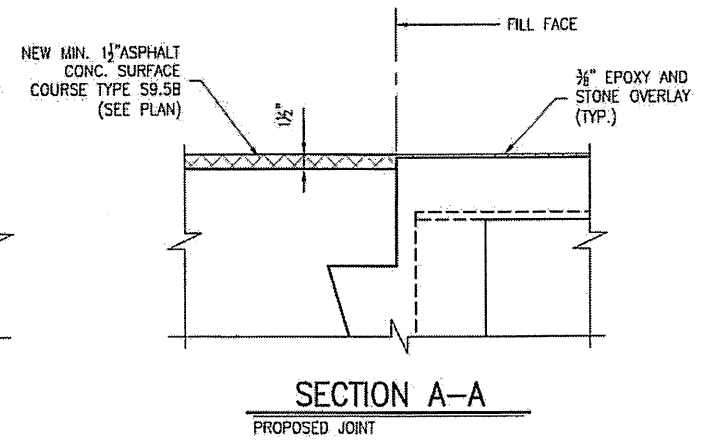
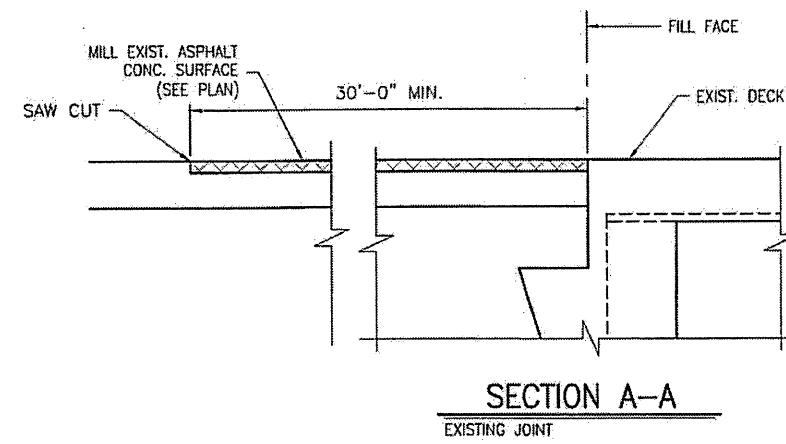
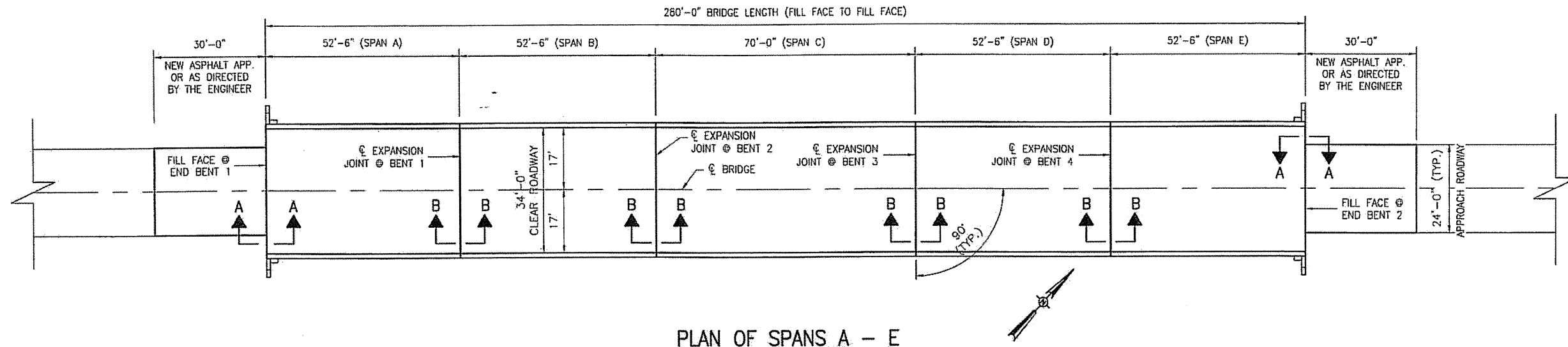
LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

TOTAL BILL OF MATERIAL				
PLACEMENT OF EPOXY STONE OVERLAY	CLASS II CONC. DECK REPAIRS FOR EPOXY OVERLAY	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. FT.	SQ. FT.	LUMP SUM	TON	SQ. YD.
9,520	95	L.S.	13	160

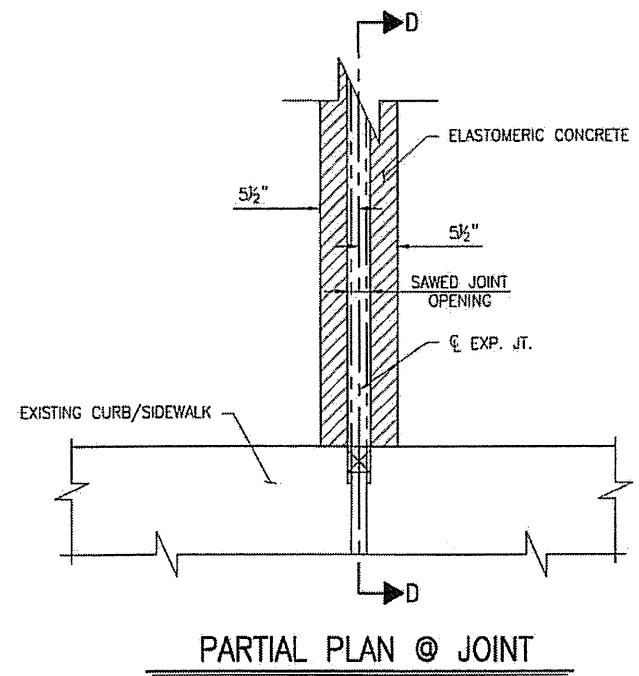
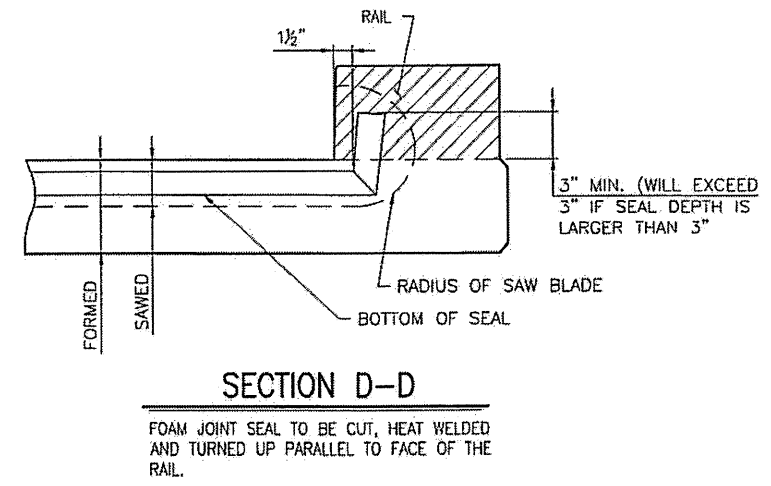


DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-1
1	TLB	3/22/12	3			TOTAL SHEETS
2			4			65



- NOTES:
1. FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.
 2. SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.
 3. THE QUANTITY FOR CLASS II DECK REPAIR IS ESTIMATED.
 4. FOR SECTION B-B, SEE SHEET S-3.



PLAN PREPARED BY:

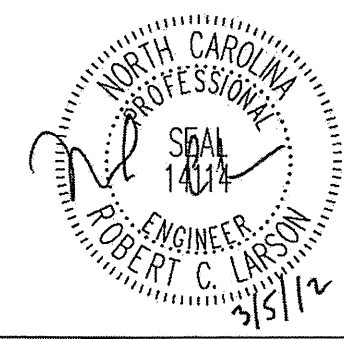


ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS
 4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
 Phone 919 981 0310 Fax 919 981 0451
 Firm License No. C-1684 www.aogroup.com
 A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
 BRIDGE NO. 170020

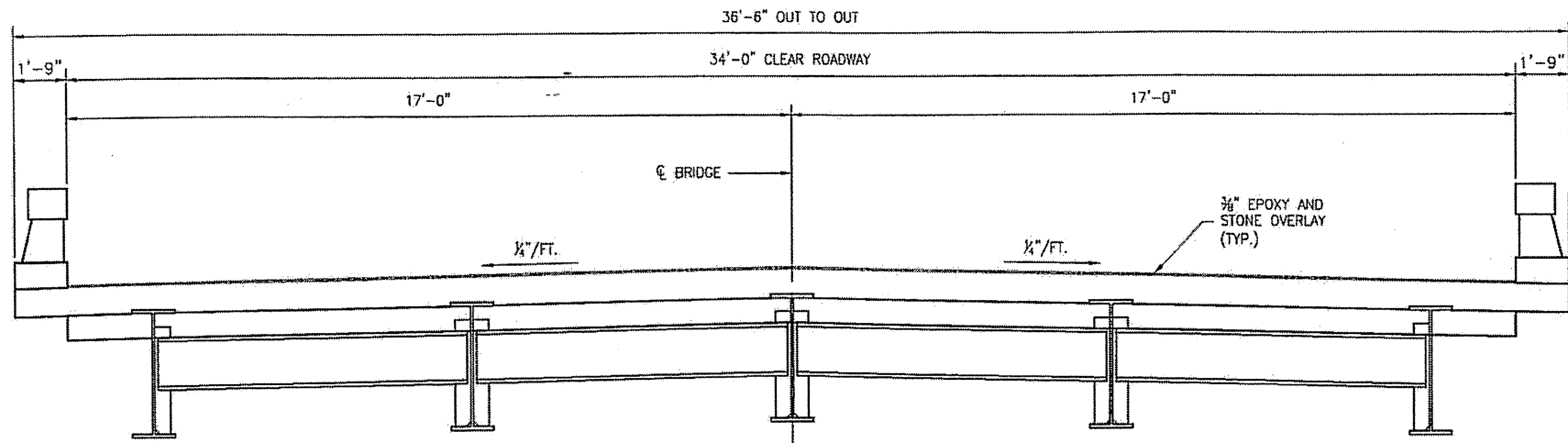
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE PLAN
 AND DETAILS



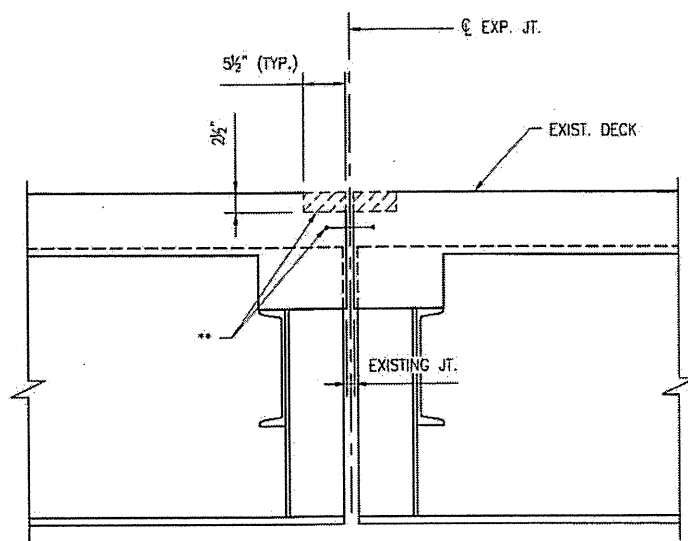
DRAWN BY: J.D. GOODIN DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			65



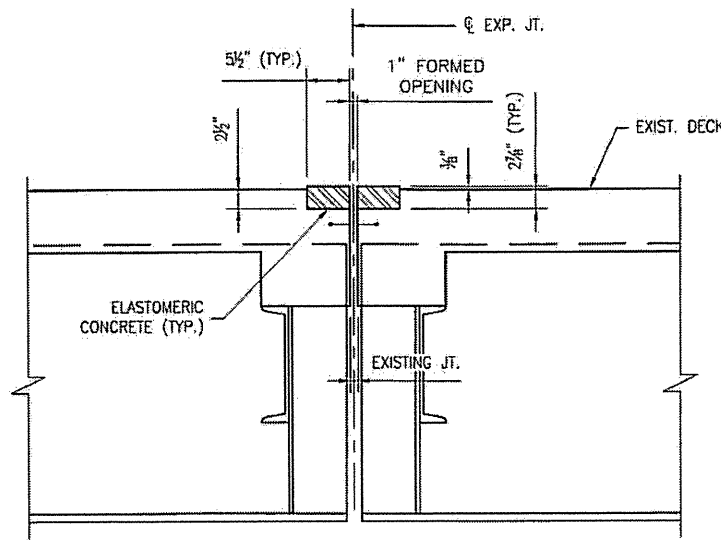
TYPICAL SECTION SPANS A - E

TEMP.	45° F	60° F	90° F
BENT 1	2 1/8"	1 7/8"	1 5/8"
BENT 2	2"	1 7/8"	1 1/2"
BENT 3	1 5/8"	1 1/8"	1 1/4"
BENT 4	1 5/8"	1 7/8"	1 1/4"



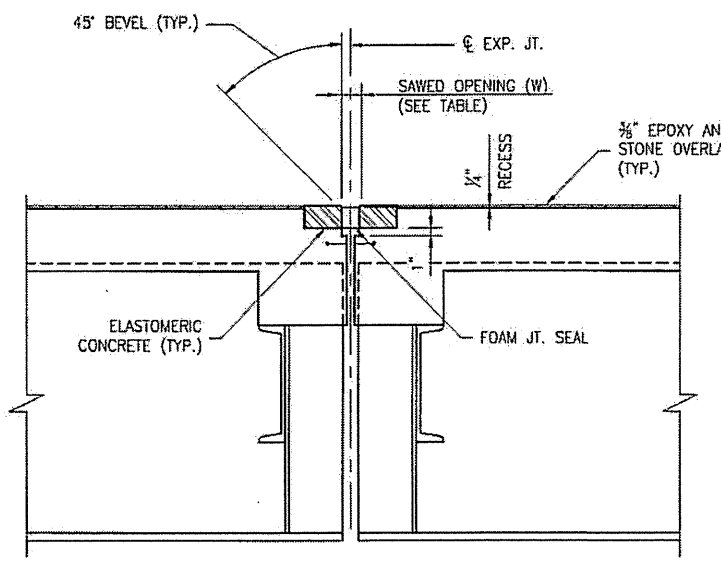
SECTION B-B

MAX. EXISTING JOINT DEMOLITION



SECTION B-B

PROPOSED JOINT (PRE-SAWED)

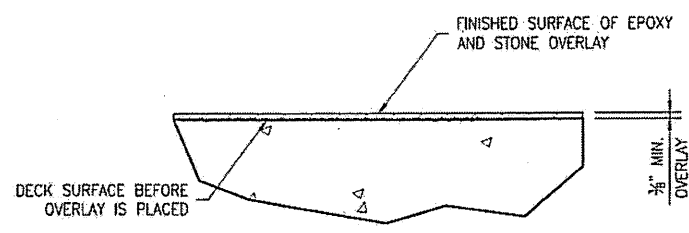


SECTION B-B

PROPOSED JOINT

NOTE: USE 2 1/2" WIDE UNCOMPRESSED FOAM JOINT SEAL MATERIAL.

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.



DETAIL FOR EPOXY AND STONE OVERLAY

PLAN PREPARED BY:



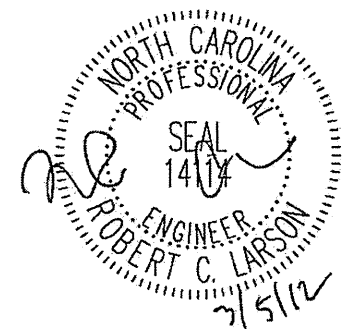
ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
BRIDGE NO. 170020

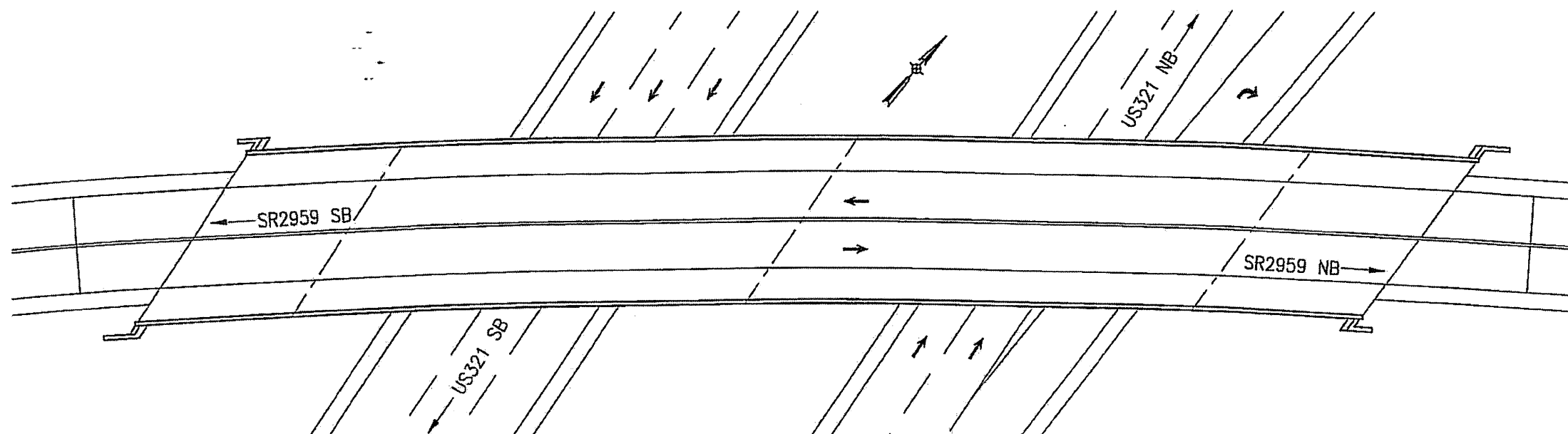
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
AND JOINT DETAILS



DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO	BY	DATE	NO	BY	DATE	S-3
1			3			TOTAL SHEETS
2			4			65



BRIDGE 170066 ON SR2959

LOCATION: BRIDGE 170066, SR2959 OVER US321, 0.2 MILES SOUTH OF JUNCTION WITH SR1213.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

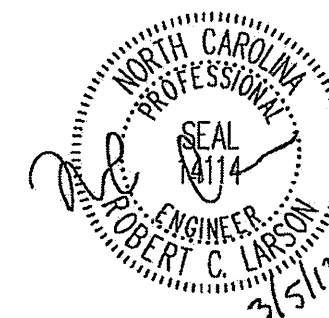
4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
BRIDGE NO. 170066

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

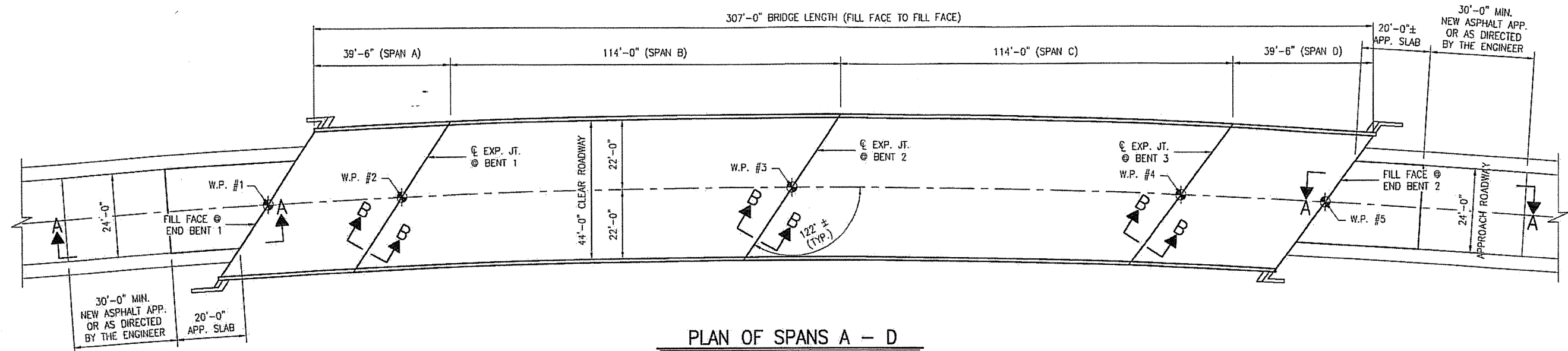
LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

TOTAL BILL OF MATERIAL				
PLACEMENT OF EPOXY OVERLAY	CLASS II CONC. DECK REPAIRS FOR EPOXY OVERLAY	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. FT.	SQ. FT.	LUMP SUM	TON	SQ. YD.
14,828	148	L.S.	13	160

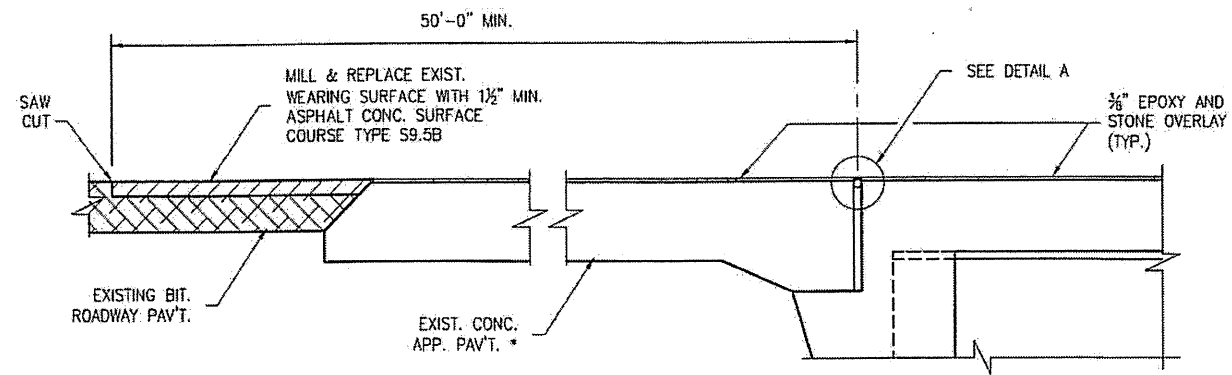


REVISIONS						SHEET NO.
NO	BY	DATE	NO	BY	DATE	S-4
1	TLB	3/22/12	3			TOTAL SHEETS
2			4			65

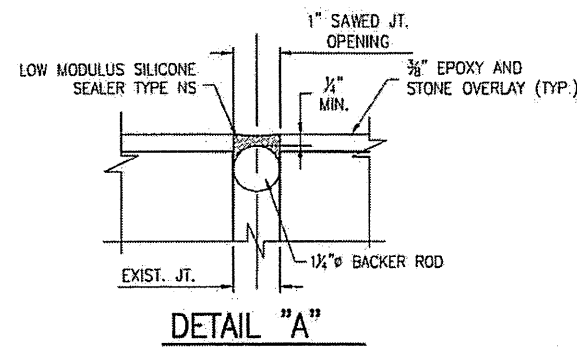
DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11



PLAN OF SPANS A - D



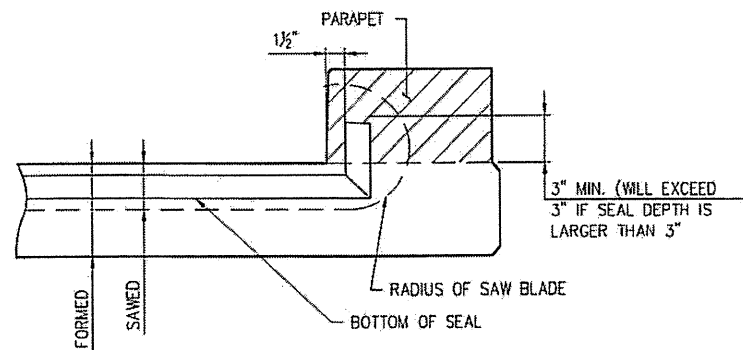
SECTION A-A



DETAIL "A"

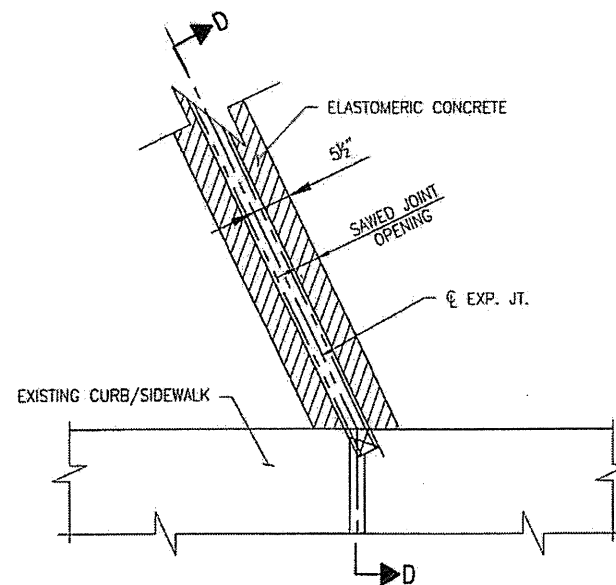
NOTES:

1. FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.
2. SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.
3. THE QUANTITY FOR CLASS II DECK REPAIR IS ESTIMATED.
4. FOR SECTION B-B, SEE SHEET S-6
5. 1 1/4" BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT TO CONSTRUCT JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF THE PARAPET RAIL.



PARTIAL PLAN @ JOINT

PLAN PREPARED BY:



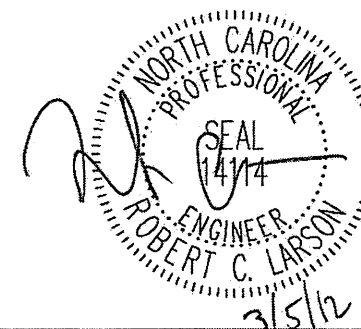
ALPHA & OMEGA GROUP
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4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
BRIDGE NO. 170066

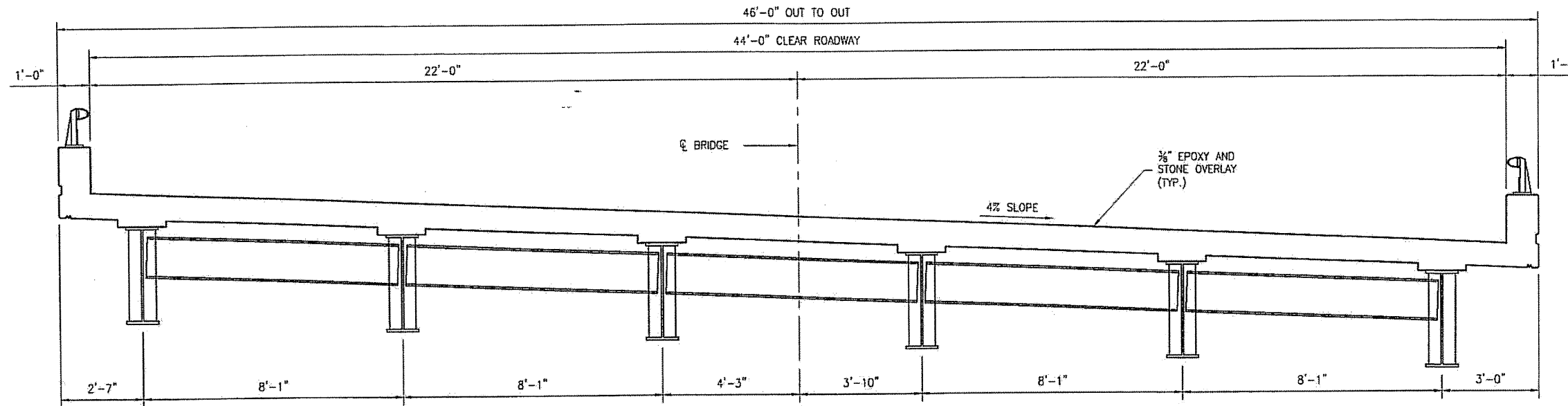
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN AND
DETAILS



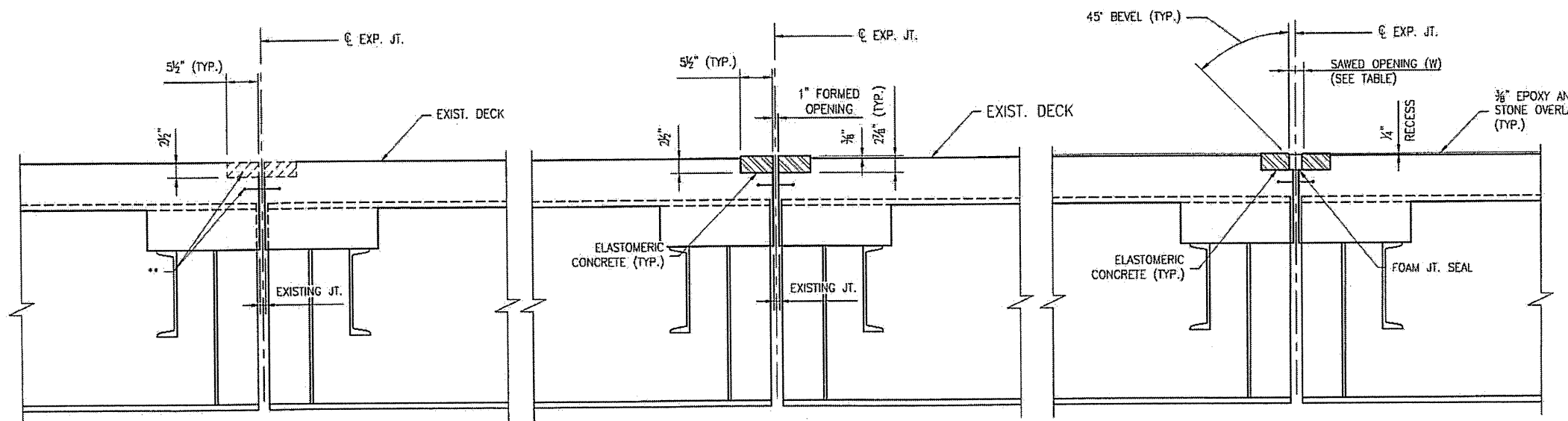
DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			65



TYPICAL SECTION SPANS A - D

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP.	45° F	60° F	90° F
BENT 1	1 ⁵ / ₁₆ "	1 ³ / ₈ "	1 ¹ / ₄ "
BENT 2	2"	1 ³ / ₈ "	1 ⁵ / ₈ "
BENT 3	2 ¹ / ₁₆ "	1 ³ / ₈ "	1 ¹ / ₂ "



SECTION B-B

MAX. EXISTING JOINT DEMOLITION

SECTION B-B

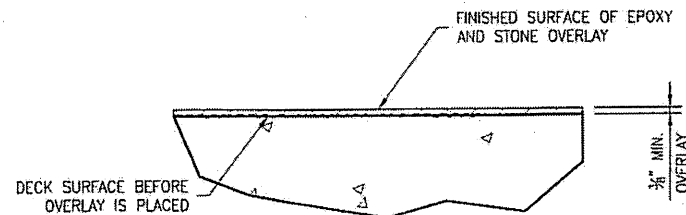
PROPOSED JOINT (PRE-SAWED)

SECTION B-B

PROPOSED JOINT

NOTE: USE 2 1/2" WIDE UNCOMPRESSED FOAM JOINT SEAL MATERIAL.

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.



DETAIL FOR EPOXY AND STONE OVERLAY

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

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A & O PROJECT #: 2011.031

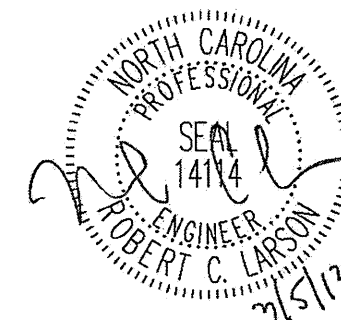
PROJECT NO. WBS 17BP.12.P.3

CATAWBA COUNTY

BRIDGE NO. 170066

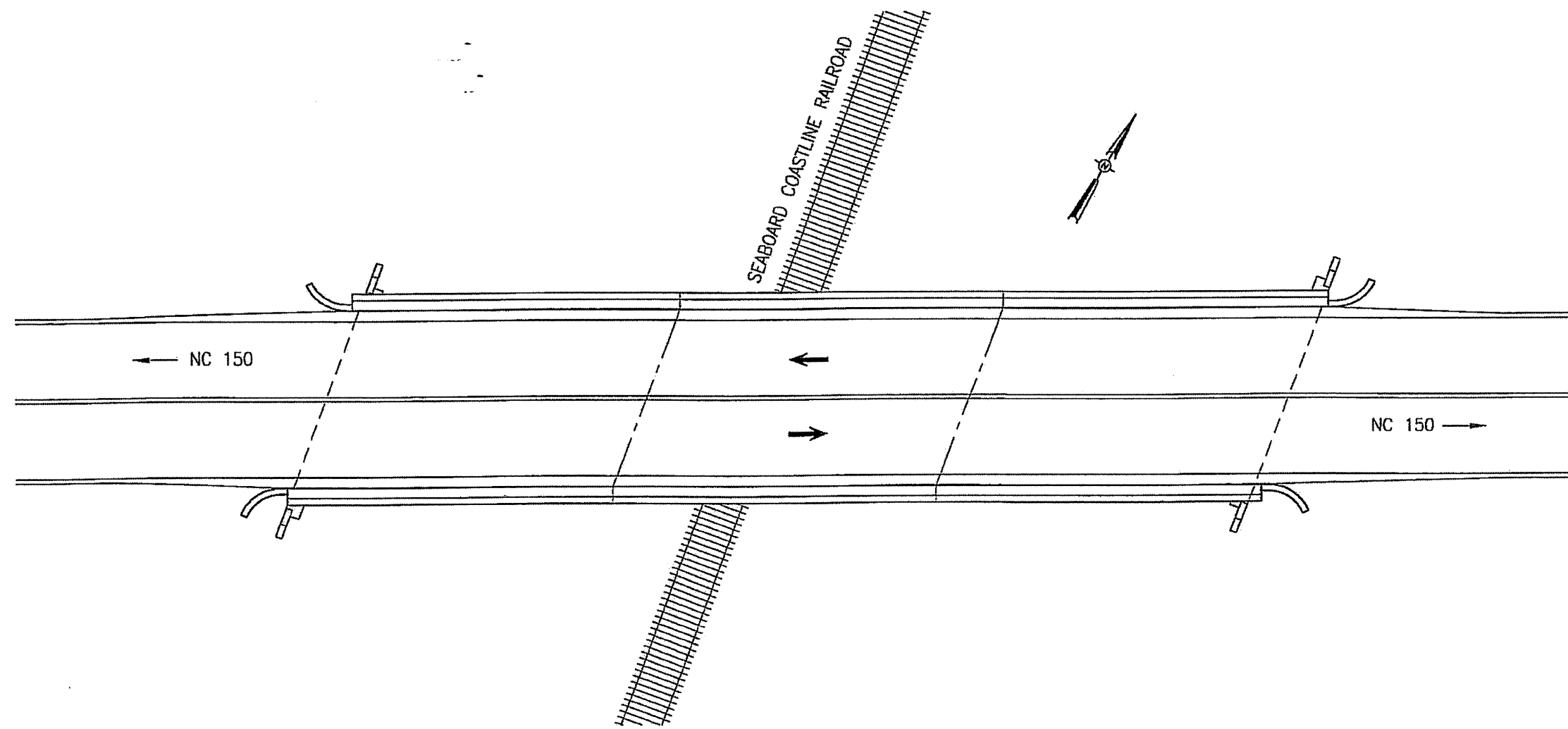
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
AND JOINT DETAILS



DRAWN BY: J.D. GODDIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			65



BRIDGE 170099 ON NC150

SCALE: NTS

LOCATION: BRIDGE 170099, NC150 OVER THE SEABOARD COASTLINE RAILROAD,
0.1 MILES WEST OF INTERSECTION OF NC150 AND SR1815.

TOTAL BILL OF MATERIAL

PLACEMENT OF EPOXY JOINT OVERLAY	CLASS II CONC. DECK REPAIRS FOR EPOXY OVERLAY	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. FT.	SQ. FT.	LUMP SUM	TON	SQ. YD.
4,330	43	L.S.	18	219

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

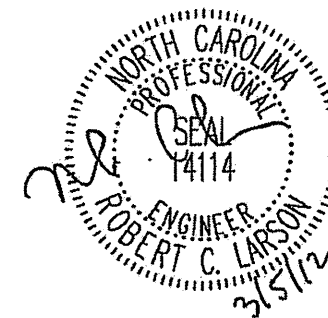
PROJECT NO. WBS 17BP.12.P.3

CATAWBA COUNTY

BRIDGE NO. 170099

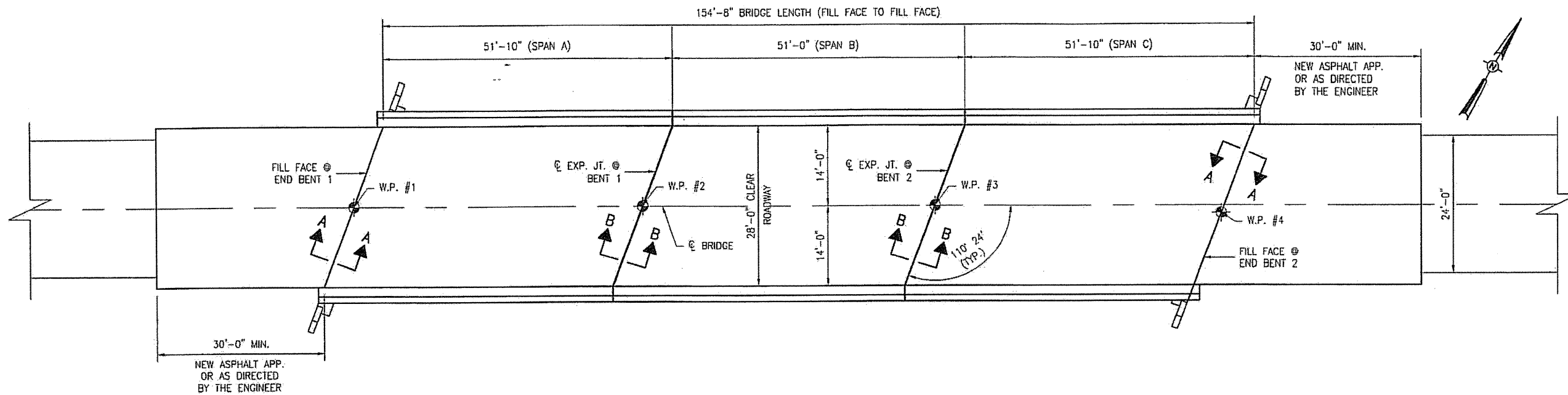
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

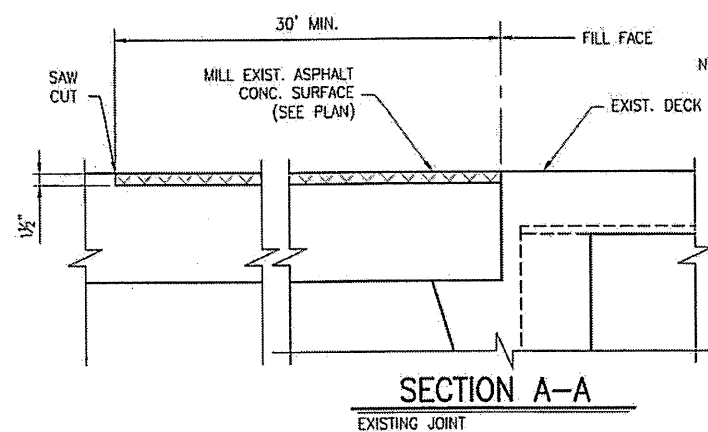


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1	TLB	3/22/12	3			TOTAL SHEETS
2			4			65

DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

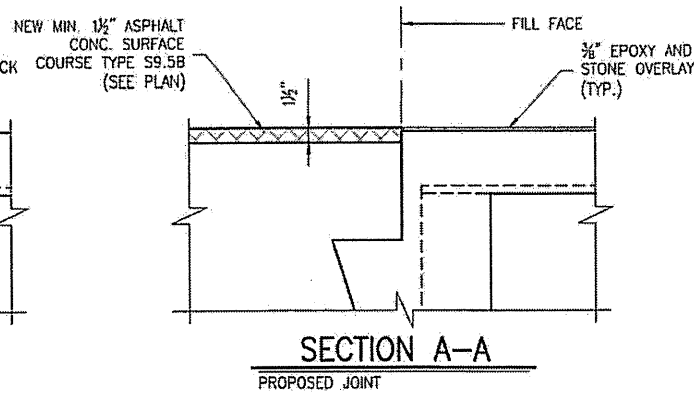


PLAN OF SPANS A - C



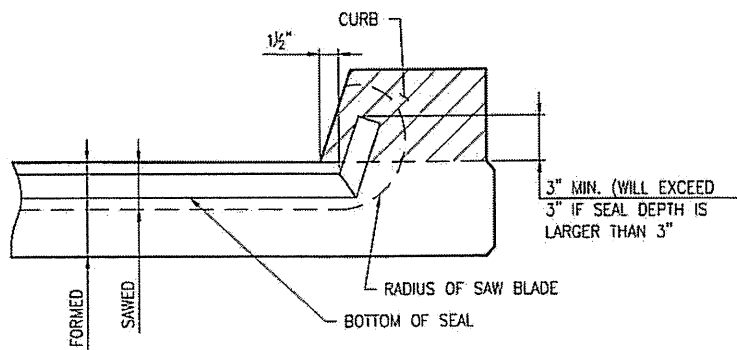
SECTION A-A

EXISTING JOINT



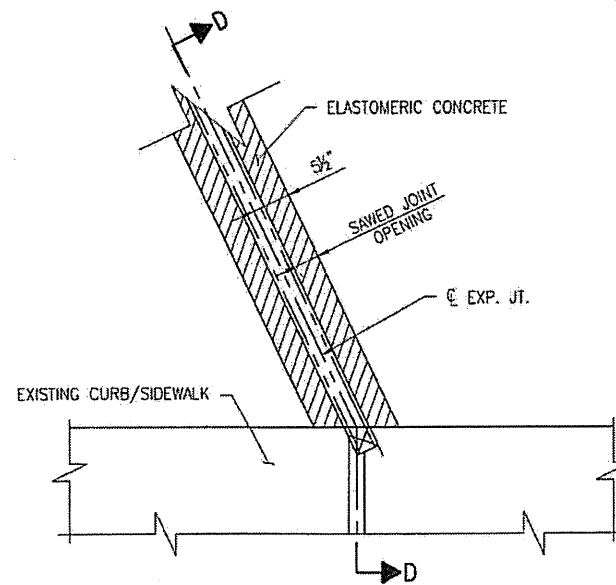
SECTION A-A

PROPOSED JOINT



SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE CURB.



PARTIAL PLAN @ JOINT

- NOTES:
1. FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.
 2. SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.
 3. THE QUANTITY FOR CLASS II DECK REPAIR IS ESTIMATED.
 4. FOR SECTION B-B, SEE SHEET S-9.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

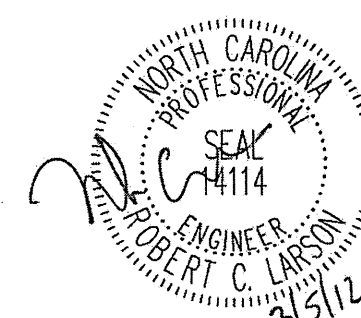
PROJECT NO. WBS 17BP.12.P.3

CATAWBA COUNTY

BRIDGE NO. 170099

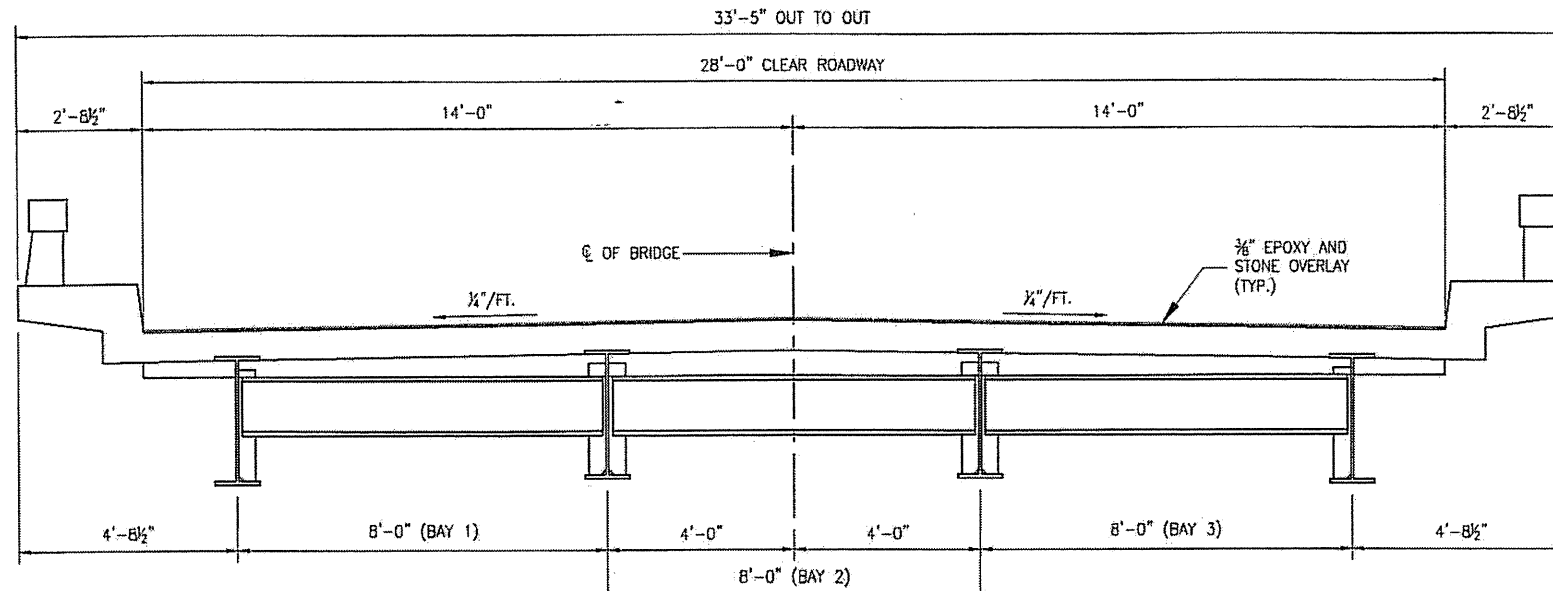
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK PLAN AND
DETAILS



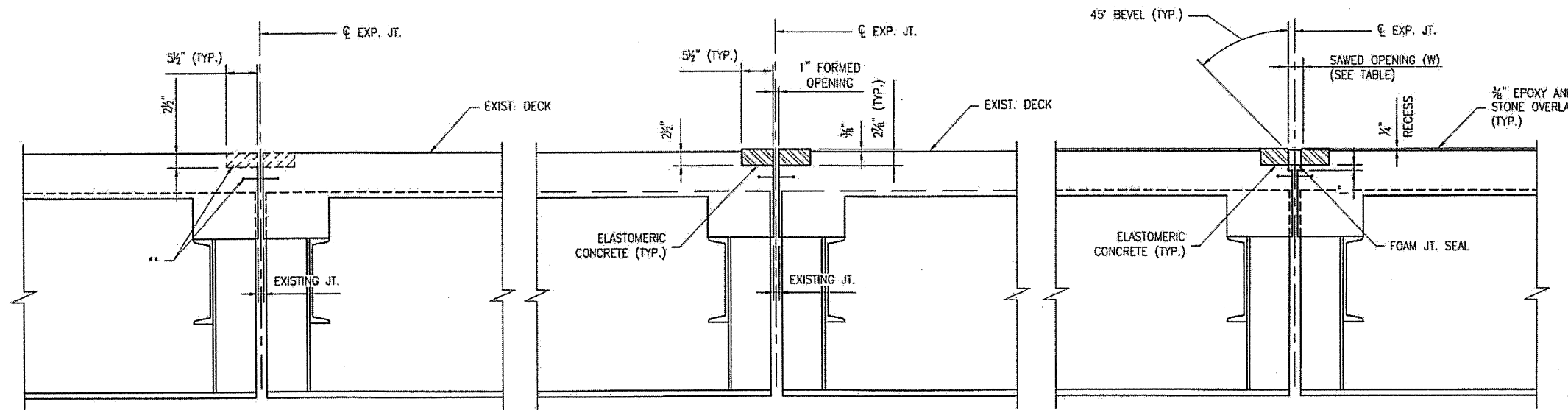
DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS 65
2			4			



TYPICAL SECTION SPANS A - C

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP.	45° F	60° F	90° F
BENT 1	2"	1 1/8"	1 1/16"
BENT 2	1 1/16"	1 7/8"	1 1/4"



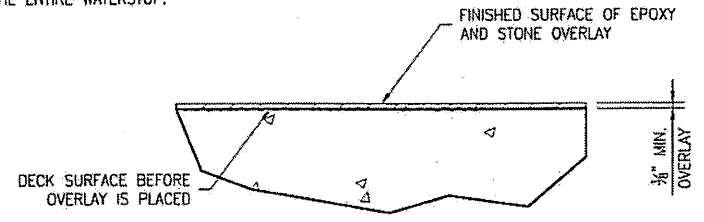
SECTION B-B
MAX. EXISTING JOINT DEMOLITION

SECTION B-B
PROPOSED JOINT (PRE-SAWED)

SECTION B-B
PROPOSED JOINT

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.

NOTES: USE 2 1/2" WIDE UNCOMPRESSED FOAM JOINT SEAL MATERIAL.



DETAIL FOR EPOXY AND STONE OVERLAY

PLAN PREPARED BY:

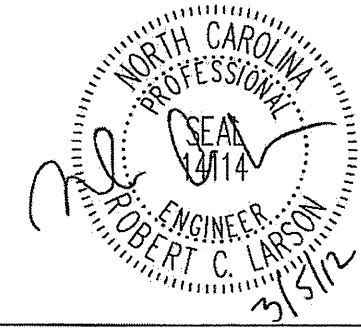


ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS
 4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
 Phone 919 981 0310 Fax 919 981 0451
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 A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
 BRIDGE NO. 170099

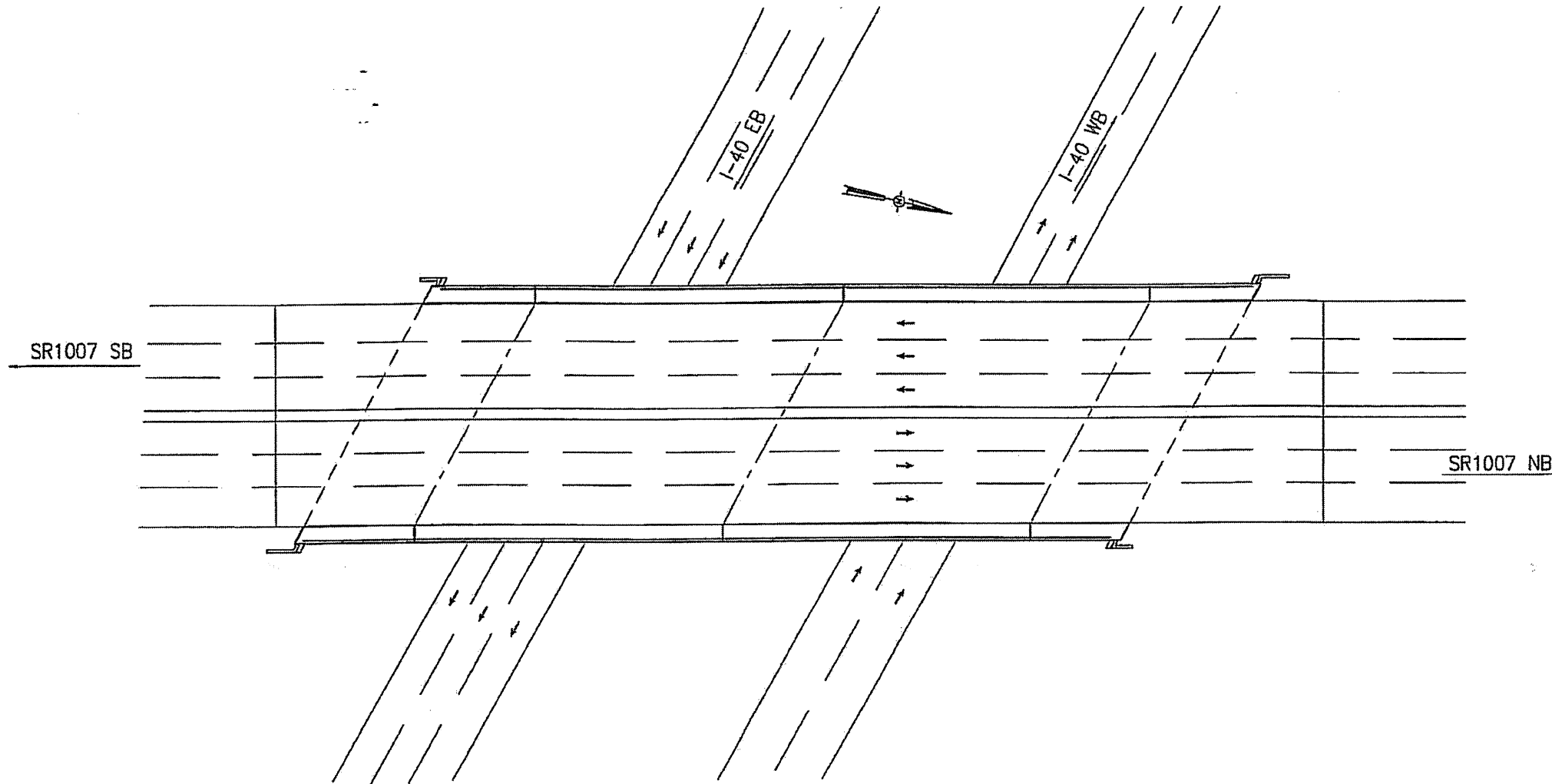
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 AND JOINT DETAILS



DRAWN BY: J.D. GOODIN DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO. S-9
NO	BY:	DATE:	NO	BY:	DATE:	
1			3			TOTAL SHEETS 65
2			4			



BRIDGE 170161 ON SR1007

LOCATION: BRIDGE 170161, SR1007 OVER I-40, 0.2 MILES NORTH OF INTERSECTION OF US-70 AND US321 BUS.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

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A & O PROJECT #: 2011.031

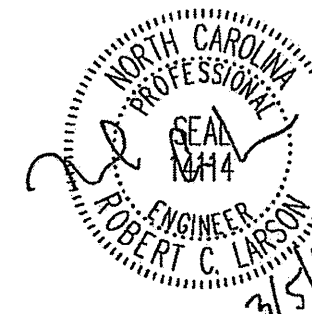
PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
BRIDGE NO. 170161

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

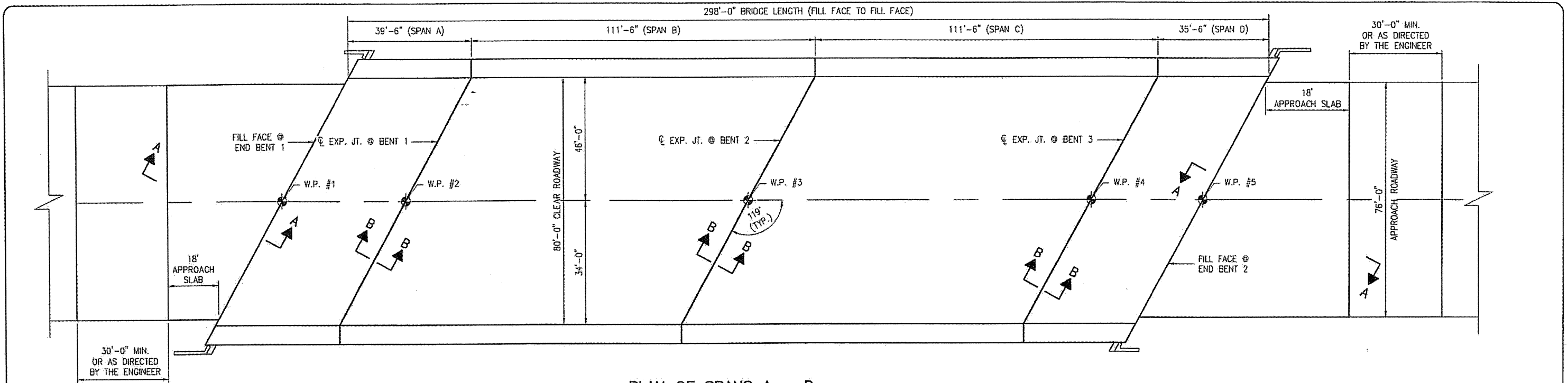
TOTAL BILL OF MATERIAL				
PLACEMENT OF EPOXY OVERLAY	CLASS II CONC. DECK REPAIRS FOR EPOXY OVERLAY	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. FT.	SQ. FT.	LUMP SUM	TON	SO. YD.
29,780*	238	L.S.	43	507

* INCLUDES APPROACH SLAB

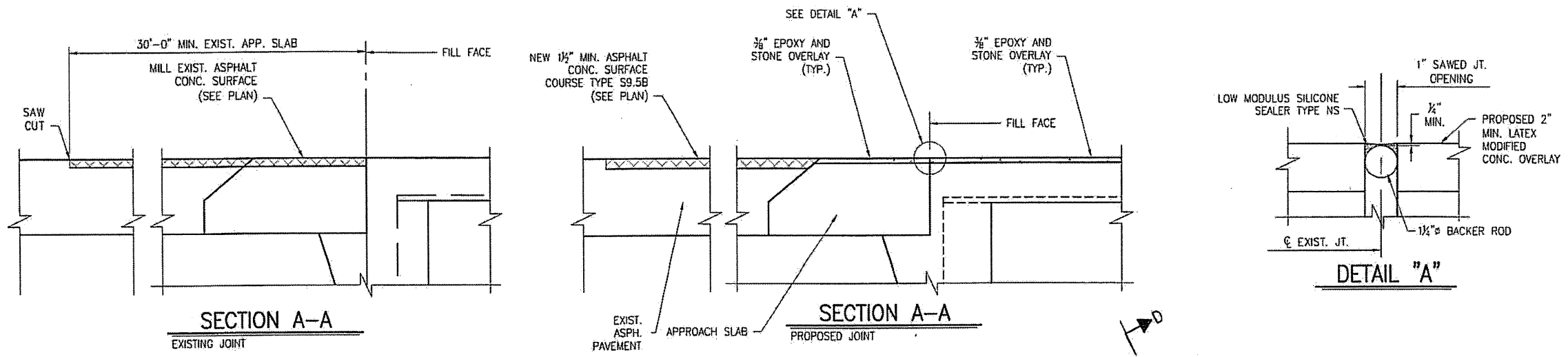


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1	TLB	3/22/12	3			TOTAL SHEETS
2			4			65

DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11



PLAN OF SPANS A - D



SECTION A-A

SECTION A-A

DETAIL "A"

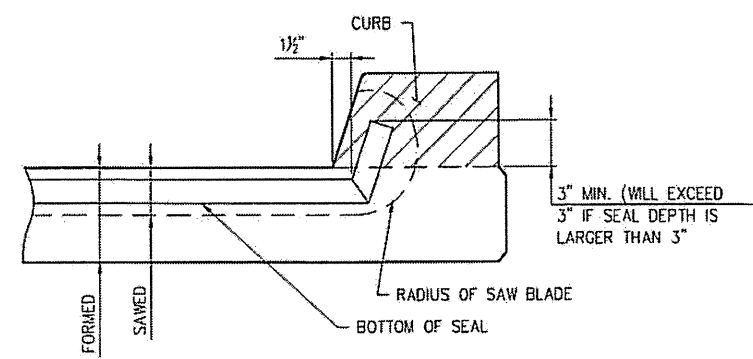
- NOTES:
1. FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.
 2. SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.
 3. THE QUANTITY FOR CLASS II DECK REPAIR IS ESTIMATED.
 4. FOR SECTION B-B, SEE SHEET S-12.

PLAN PREPARED BY:



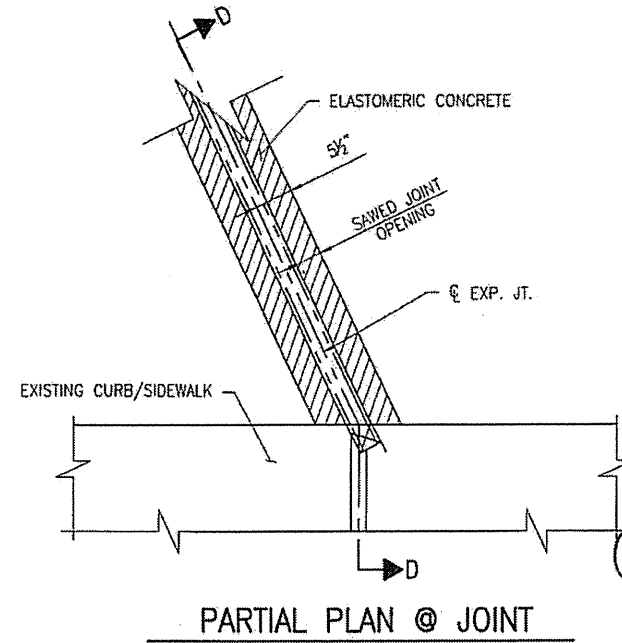
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 4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
 Phone 919 981 0310 Fax 919 981 0451
 Firm License No. C-1684 www.aagroup.com
 A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
 BRIDGE NO. 170161

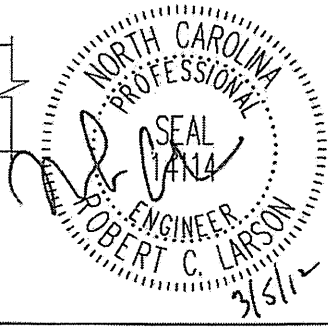


SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE CURB.

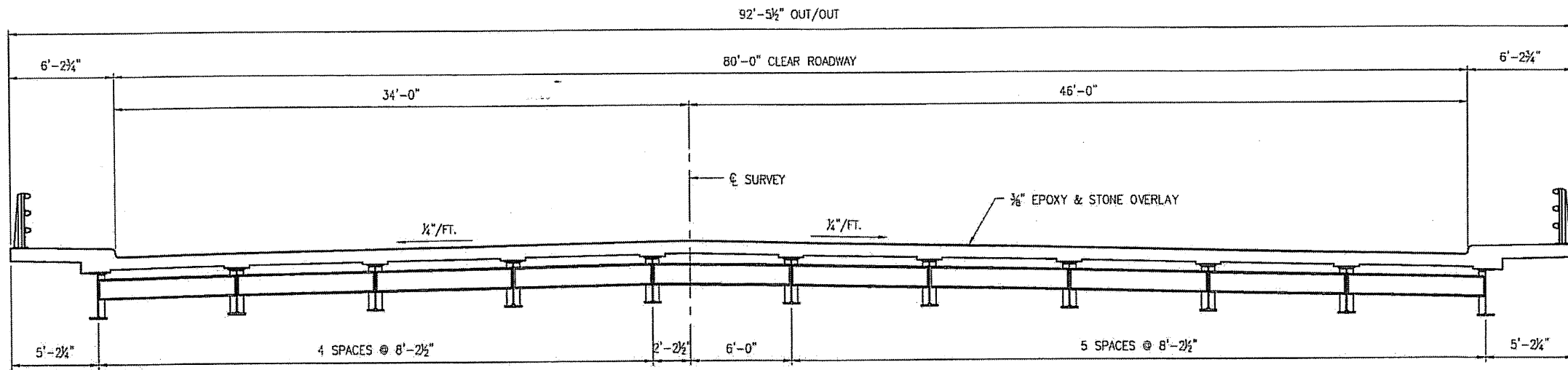


PARTIAL PLAN @ JOINT

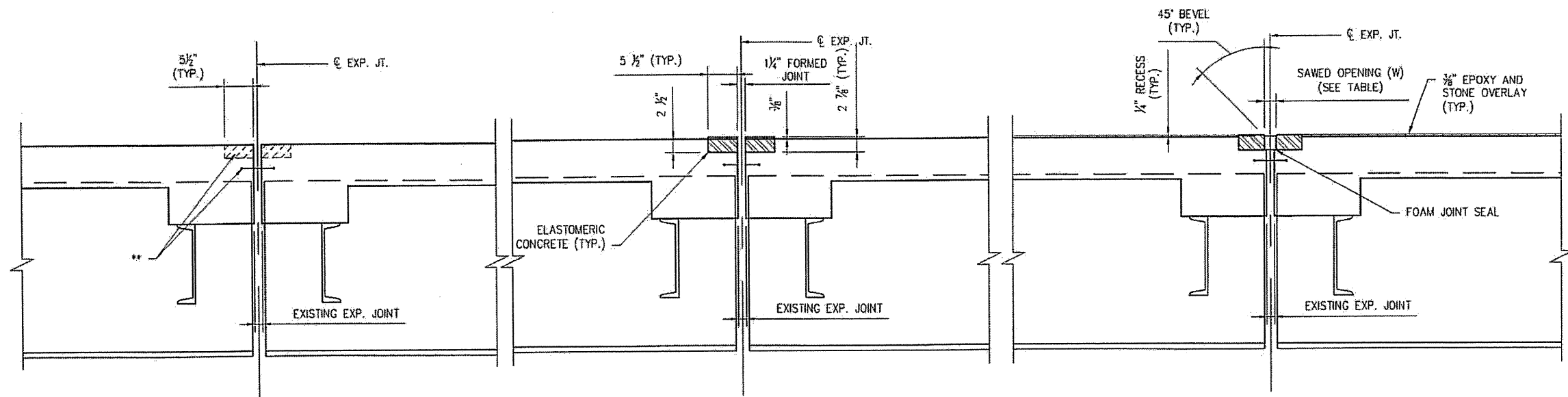


DRAWN BY: J.D. GOODIN DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	
2			4			65	



TYPICAL SECTION SPANS A - D



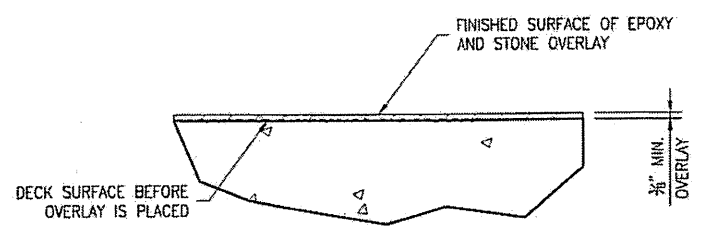
SECTION B-B
MAX. EXISTING JOINT DEMOLITION

SECTION B-B
PROPOSED JOINT (PRE-SAWED)

SECTION B-B
PROPOSED JOINT

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.

NOTES: USE 2 3/8" WIDE UNCOMPRESSED FOAM JOINT SEAL MATERIAL.



DETAIL FOR EPOXY AND STONE OVERLAY

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP.	45° F	60° F	90° F
BENT 1	2 3/16"	2 1/8"	1 3/4"
BENT 3	2 3/16"	2 1/8"	1 3/4"

PLAN PREPARED BY:



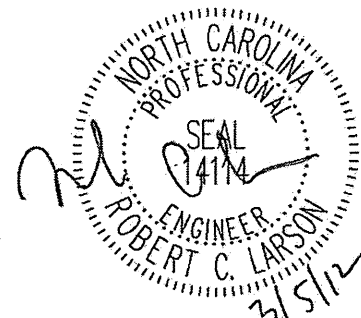
ALPHA & OMEGA GROUP
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PROJECT NO. WBS 17BP.12.P.3
CATAWBA COUNTY
BRIDGE NO. 170161

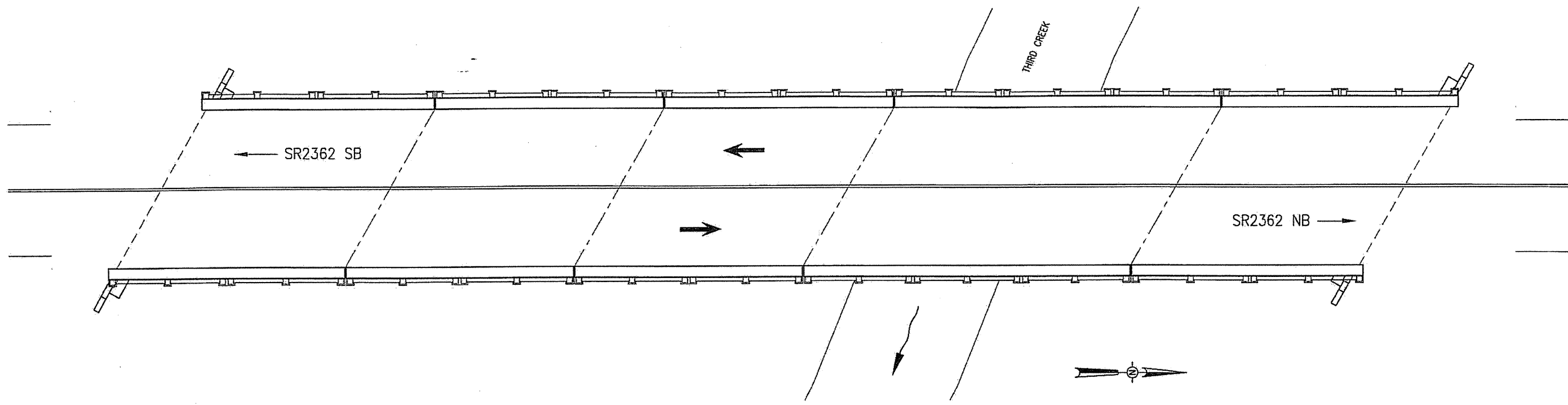
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
AND JOINT DETAILS



DRAWN BY: J.D. GOODIN DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			65



BRIDGE 480001 ON NC2362

LOCATION: BRIDGE 480001, SR2362 OVER THIRD CREEK,
0.3 MILES SOUTH OF JUNCTION WITH SR2360.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

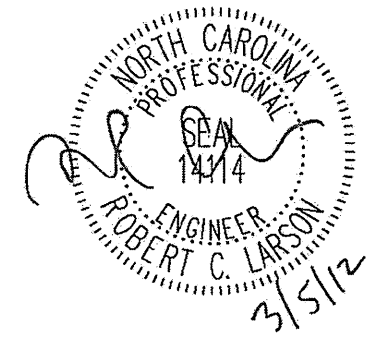
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Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

TOTAL BILL OF MATERIAL							
SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. YD.	SQ. YD.	CU. YD.	SQ. YD.	SQ. FT.	LUMP SUM	TON	SQ. YD.
507	507	18	507	3,892	L.S.	17	197

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480001

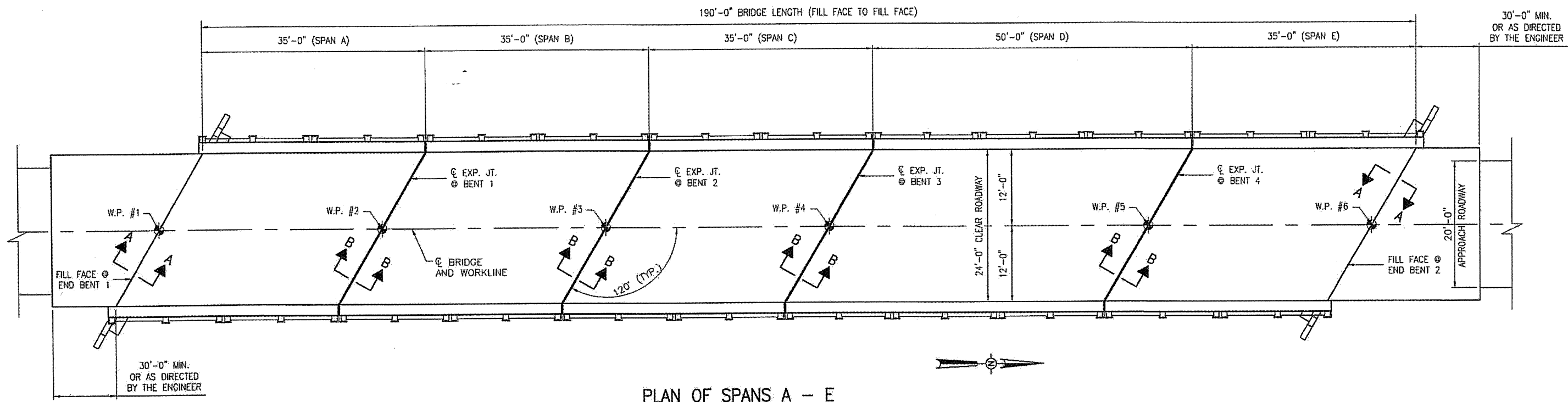
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

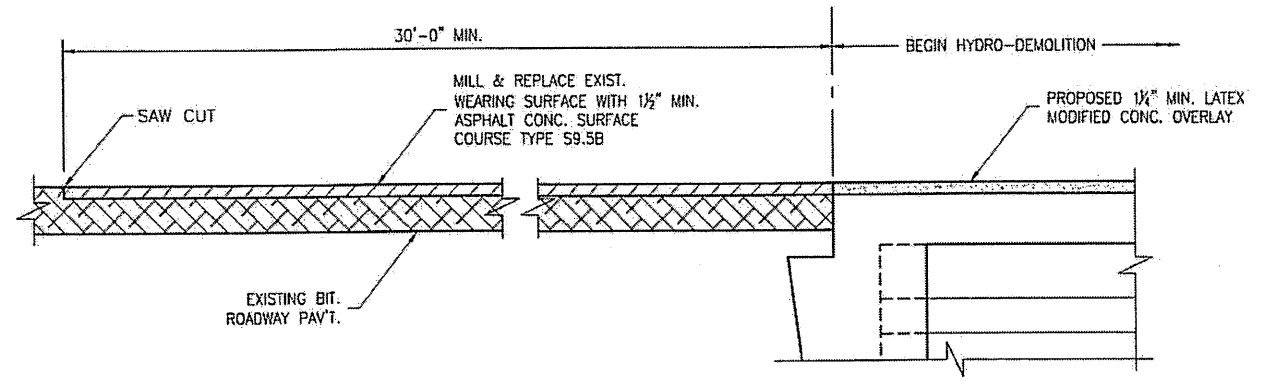


DRAWN BY: F.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

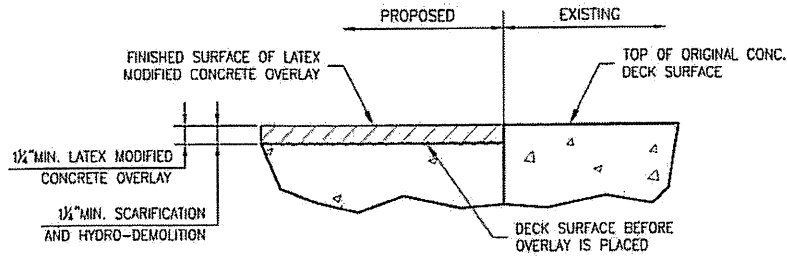
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			65



PLAN OF SPANS A - E



SECTION A-A



DETAIL FOR LATEX MODIFIED CONC. OVERLAY

- NOTES:**
- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
 - FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
 - THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
 - THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THRU OF THE DECK. SEE DETAIL, SHEET S-15.
 - FOR VERY EARLY STRENGTH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
 - FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 - FOR SECTION B-B, SEE SHEET S-15.

PLAN PREPARED BY:



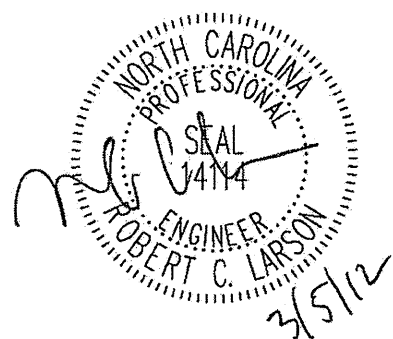
ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480001

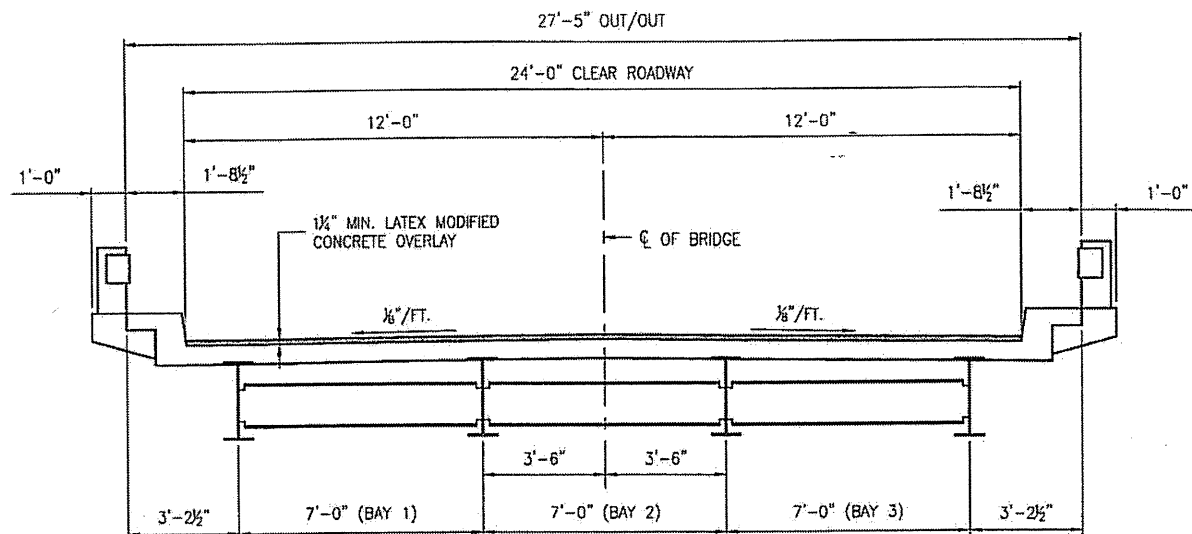
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN
AND DETAILS



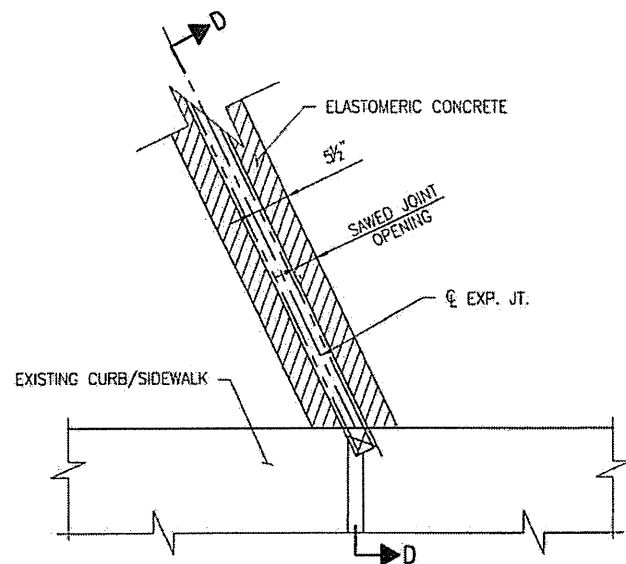
DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	
2			4			65	

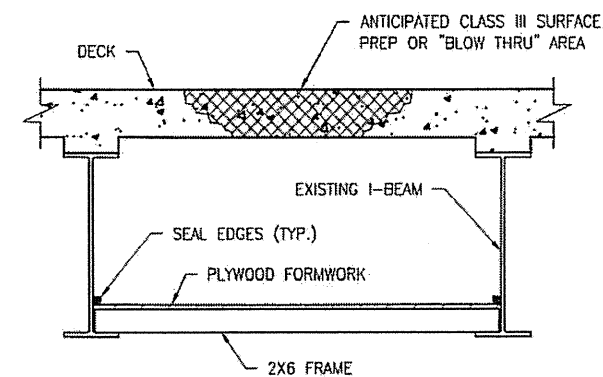


TYPICAL SECTION SPANS A - E

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP.	45° F	60° F	90° F
BENT 1	1 1/16"	1 7/8"	1 3/16"
BENT 2	1 3/16"	1 3/8"	1 3/16"
BENT 3	2"	1 3/8"	1 3/8"
BENT 4	1 3/16"	1 3/8"	1 3/16"



PARTIAL PLAN @ JOINT

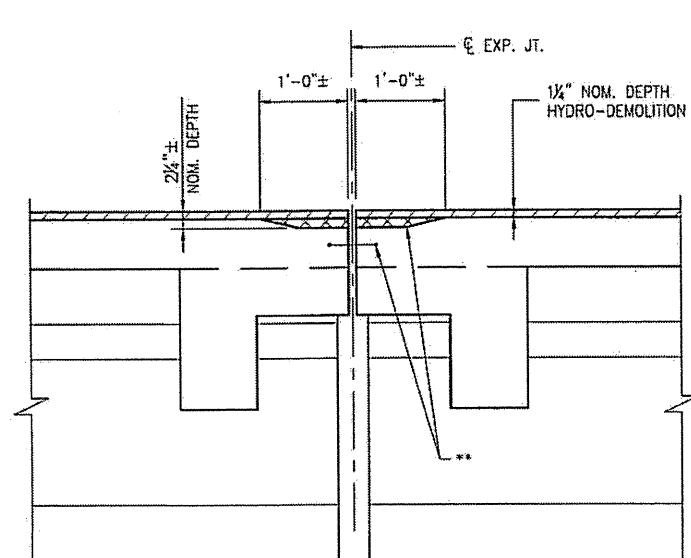


TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

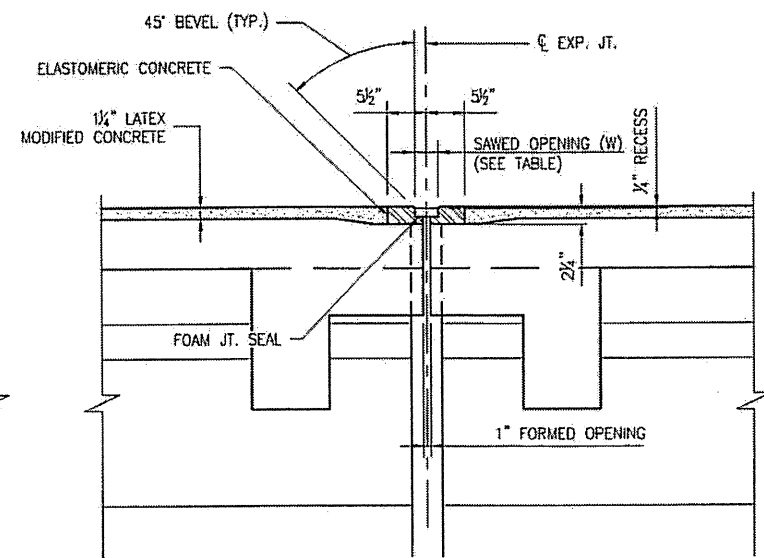
COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.



SECTION B-B

EST. MAX. EXISTING JOINT DEMOLITION

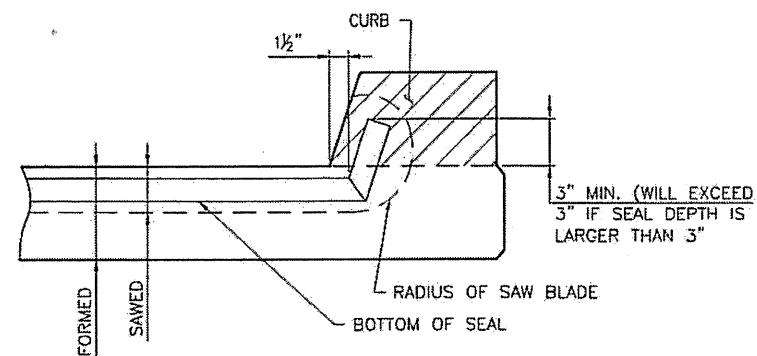
NOTES: RETAIN ALL EXIST. REINF. STEEL. CLEAN AND REPAIR AS REQ'D. ALL EXISTING JT. SEAL MATERIALS ARE TO BE COMPLETELY REMOVED.



SECTION B-B

JOINT SEAL

NOTES: USE 2 1/2" WIDE UNCOMPRESSED FOAM JOINT SEAL MATERIAL.



SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE CURB.

PLAN PREPARED BY:



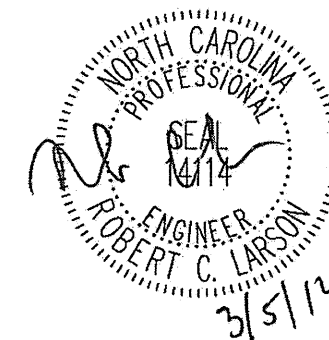
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CIVIL & STRUCTURAL ENGINEERS

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Phone 919 981 0310 Fax 919 981 0451
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480001

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

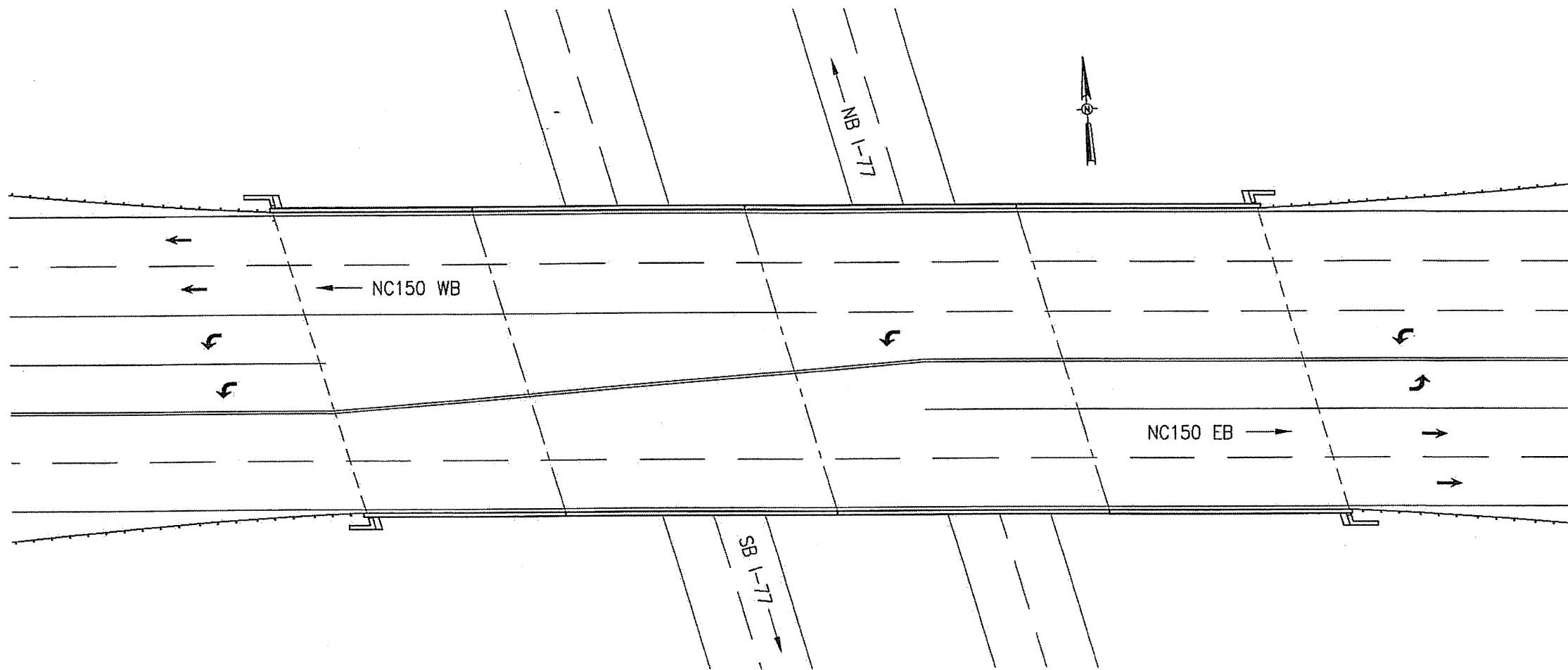
TYPICAL SECTION
AND JOINT DETAILS



REVISIONS						SHEET NO.	
NO	BY:	DATE:	NO	BY:	DATE:	S-15	
1			3			TOTAL SHEETS	
2			4			65	

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.



BRIDGE 480026 ON NC150

LOCATION: BRIDGE 480026, NC150 OVER I-77, 0.4 MILE EAST OF JUNCTION WITH SR1474.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

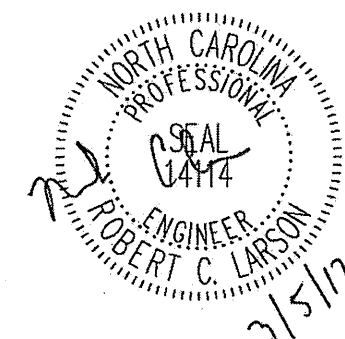
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Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

TOTAL BILL OF MATERIAL									
SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	SHOTCRETE REPAIRS	INCIDENTAL MILLING	CLEAN AND PAINT BEARINGS
SQ. YD.	SQ. YD.	CU. YD.	SQ. YD.	SQ. FT.	LUMP SUM	TON	CU. FT.	SQ. YD.	EA.
1,982	1,982	83	1,982	17,574	L.S.	85	184	1,008	96

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

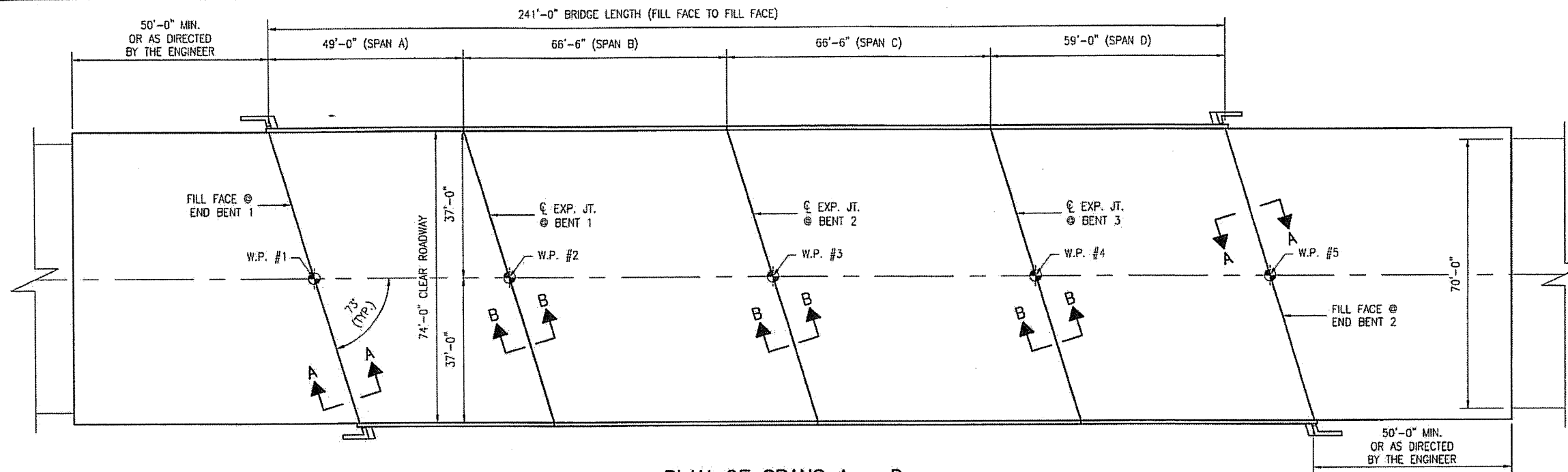
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

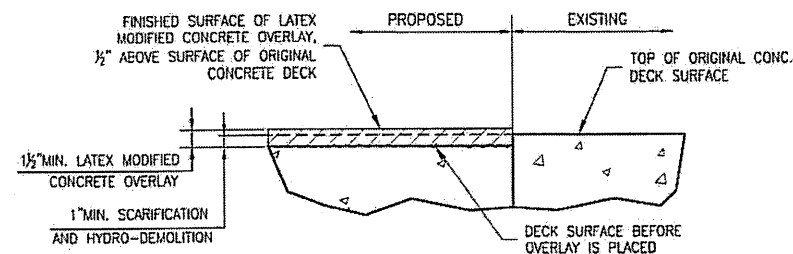
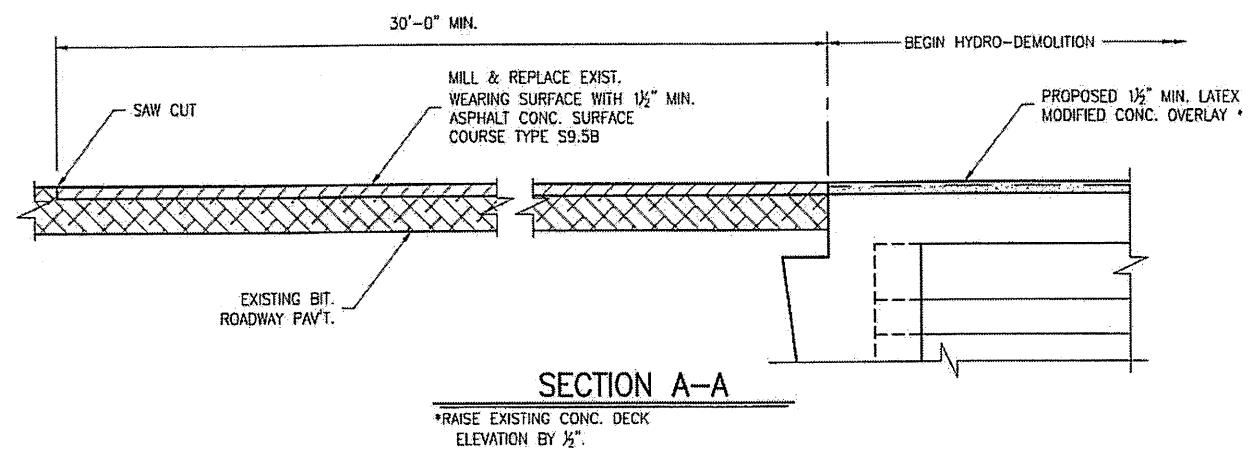


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO	BY:	DATE:	NO	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			65



PLAN OF SPANS A - D



NOTE: EXISTING DEPTH OF CONC. COVER IS UNKNOWN. CONTRACTOR TO MAKE HIS OWN DETERMINATION.

NOTES:

- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
- FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THRU OF THE DECK. SEE DETAIL, SHEET S-19.
- FOR VERY EARLY STRENGTH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR SECTION B-B, SEE SHEET S-18.
- CLEAN AND PAINT ALL STEEL BEARING PLATES. SEE SPECIAL PROVISIONS.

PLAN PREPARED BY:



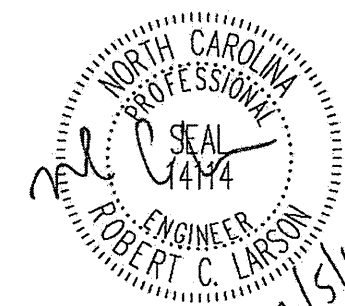
ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

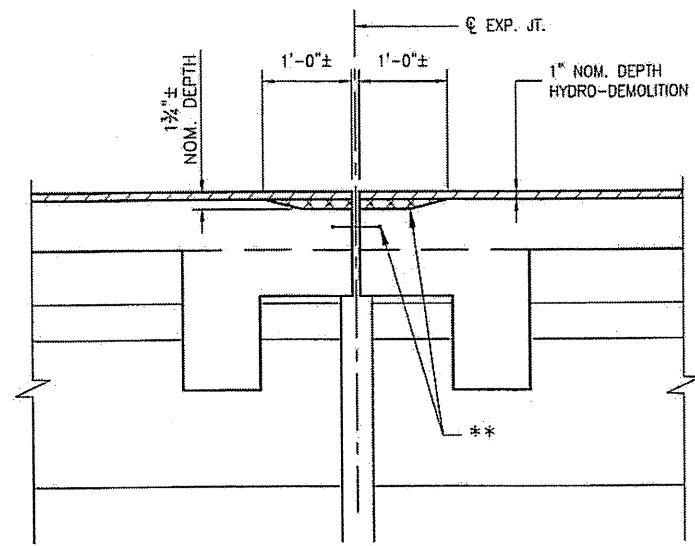
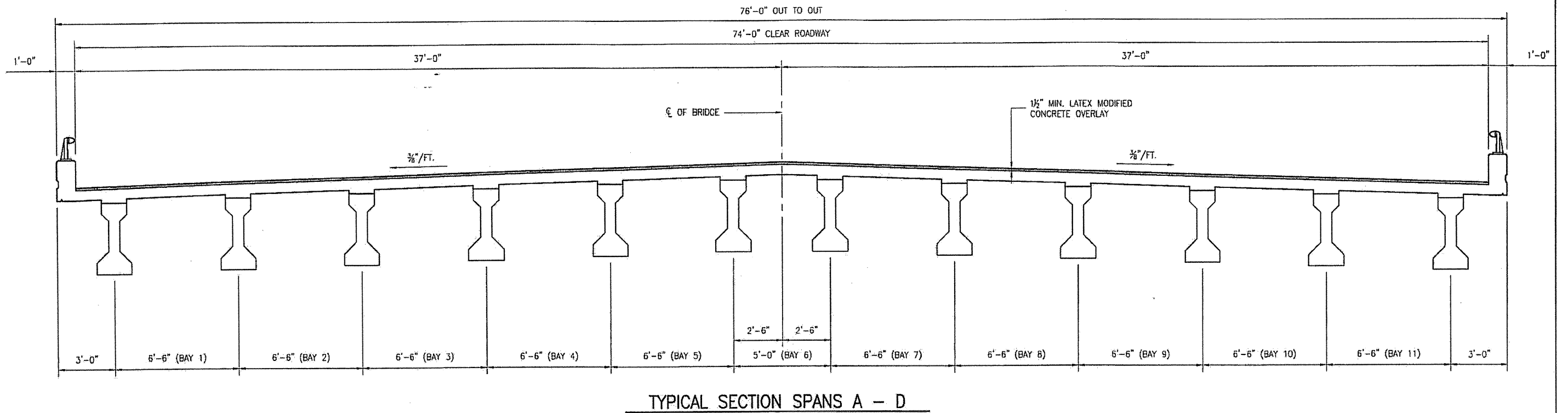
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN
AND DETAILS



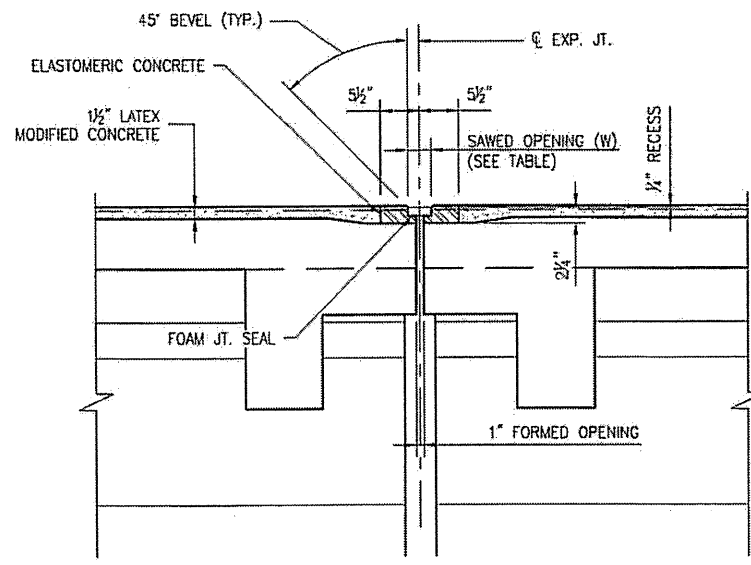
DRAWN BY: F.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO	BY:	DATE:	NO	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			65



NOTES: RETAIN ALL EXIST. REINF. STEEL.
CLEAN AND REPAIR AS REQ'D.
ALL EXISTING JT. SEAL MATERIALS
ARE TO BE COMPLETELY REMOVED.

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.



NOTES: USE 2 1/2" WIDE UNCOMPRESSED
FOAM JOINT SEAL MATERIAL.

TEMP.	45° F	60° F	90° F
BENT 1	2 1/4"	2"	1 7/8"
BENT 2	2 1/4"	2"	1 13/16"
BENT 3	2 3/16"	2"	1 9/16"

PLAN PREPARED BY:

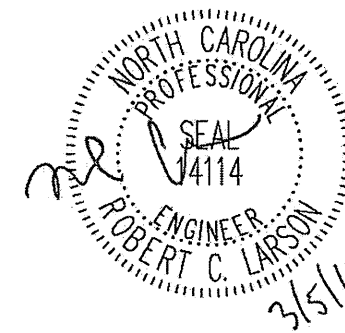


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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

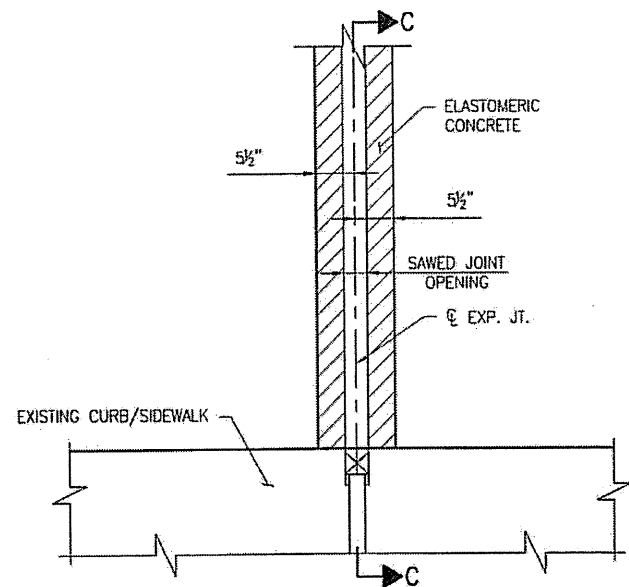
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
AND DETAILS

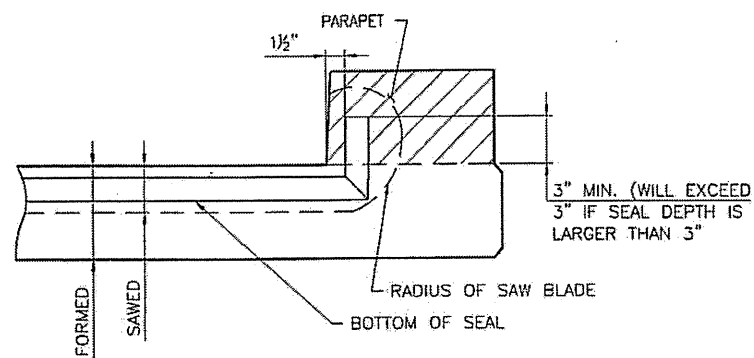


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			65

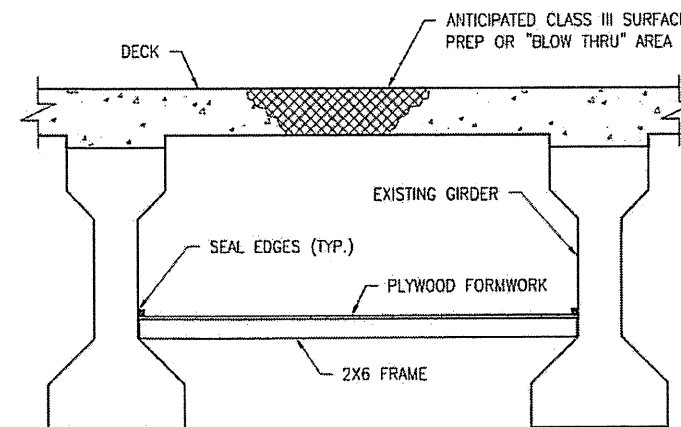


PARTIAL PLAN @ JOINT



SECTION C-C

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF THE PARAPET.

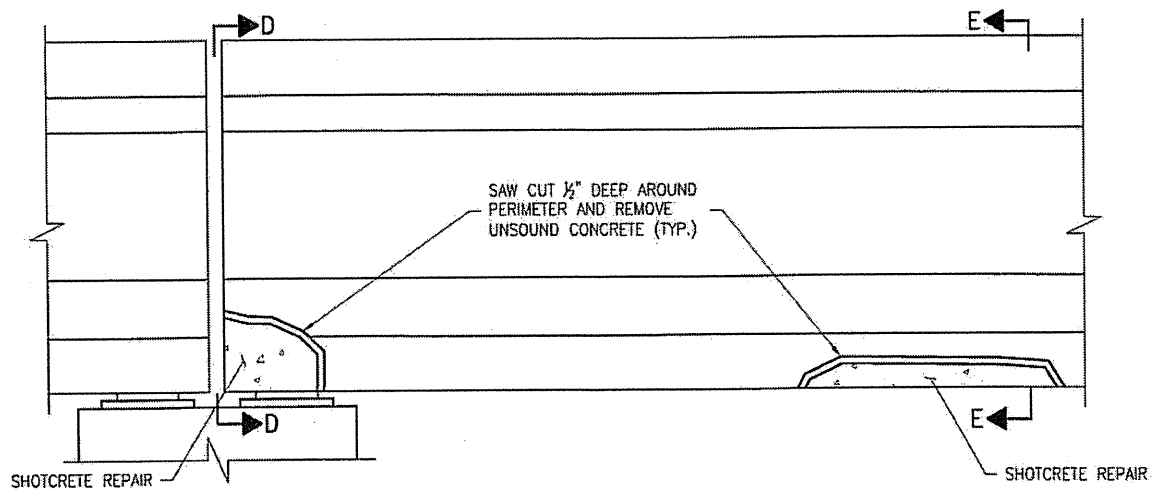


TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

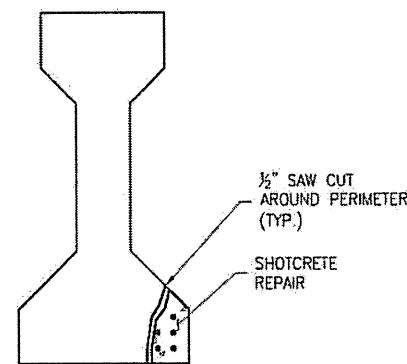
PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

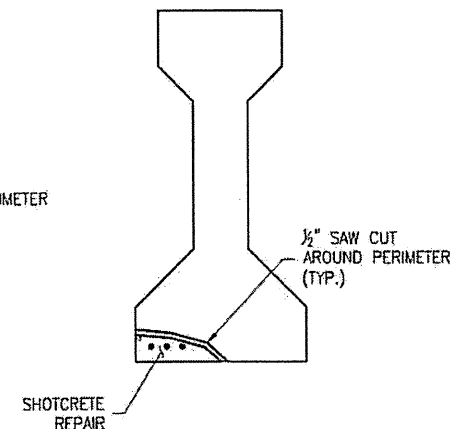
COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.



TYPICAL GIRDER ELEVATION



SECTION D-D



SECTION E-E

PLAN PREPARED BY:



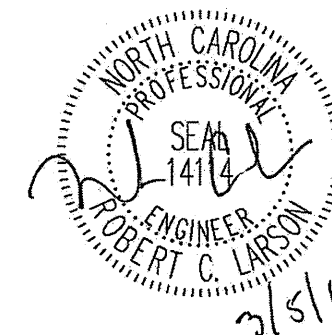
ALPHA & OMEGA GROUP
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

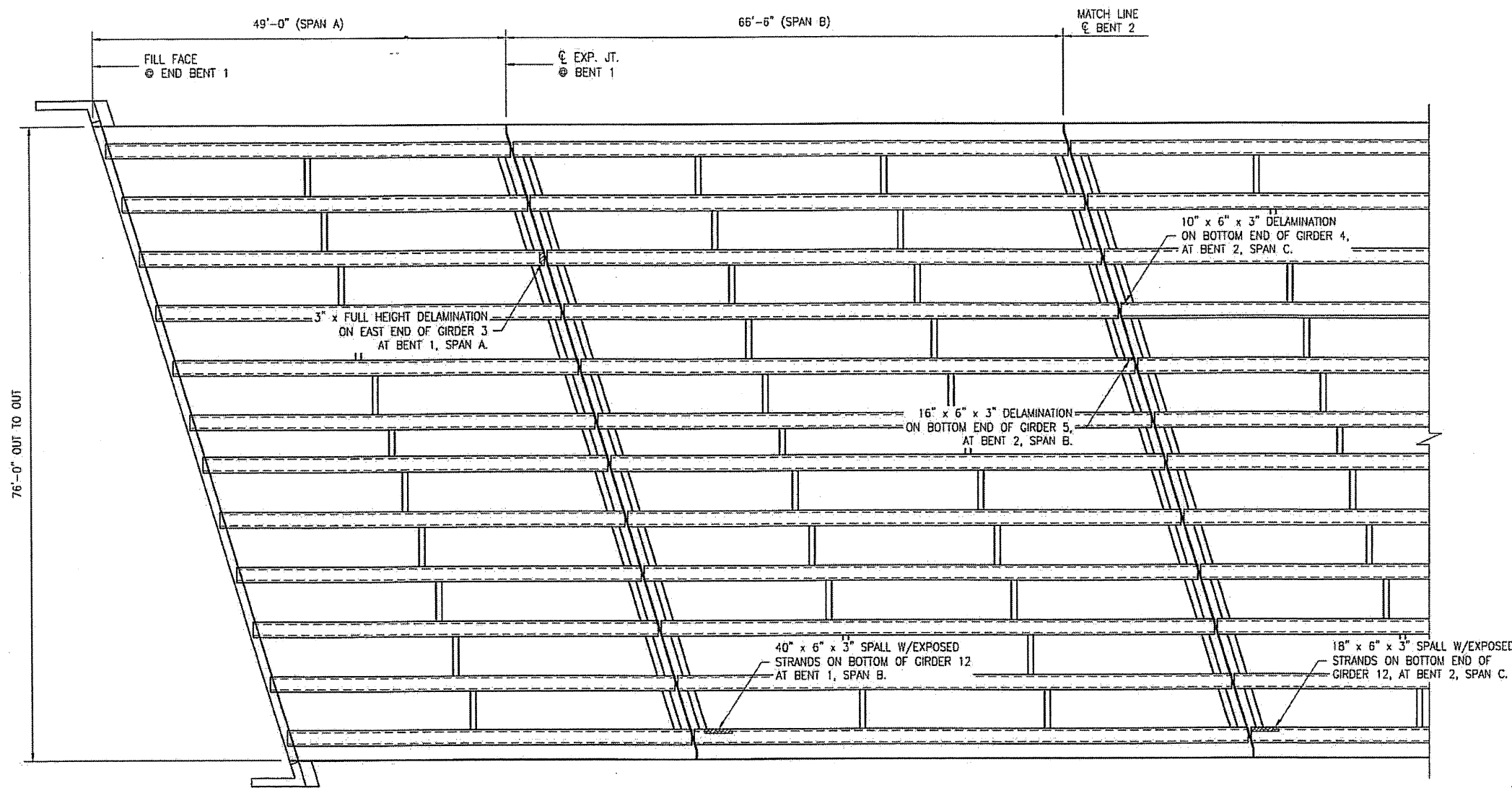
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

EXPANSION JOINT
AND GIRDER
REPAIR DETAILS



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CHECKED BY: R.C. LARSON DATE: 12-08-11

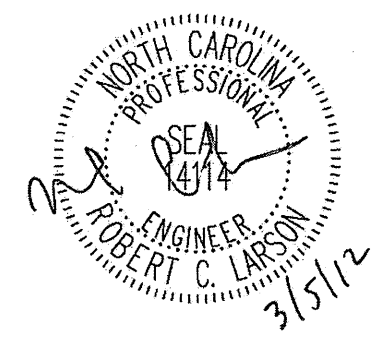
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			65



DECK PLAN UNDERSIDE

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-19 SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS SPANS A & B = 2 CF



PLAN PREPARED BY:



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4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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IREDELL COUNTY

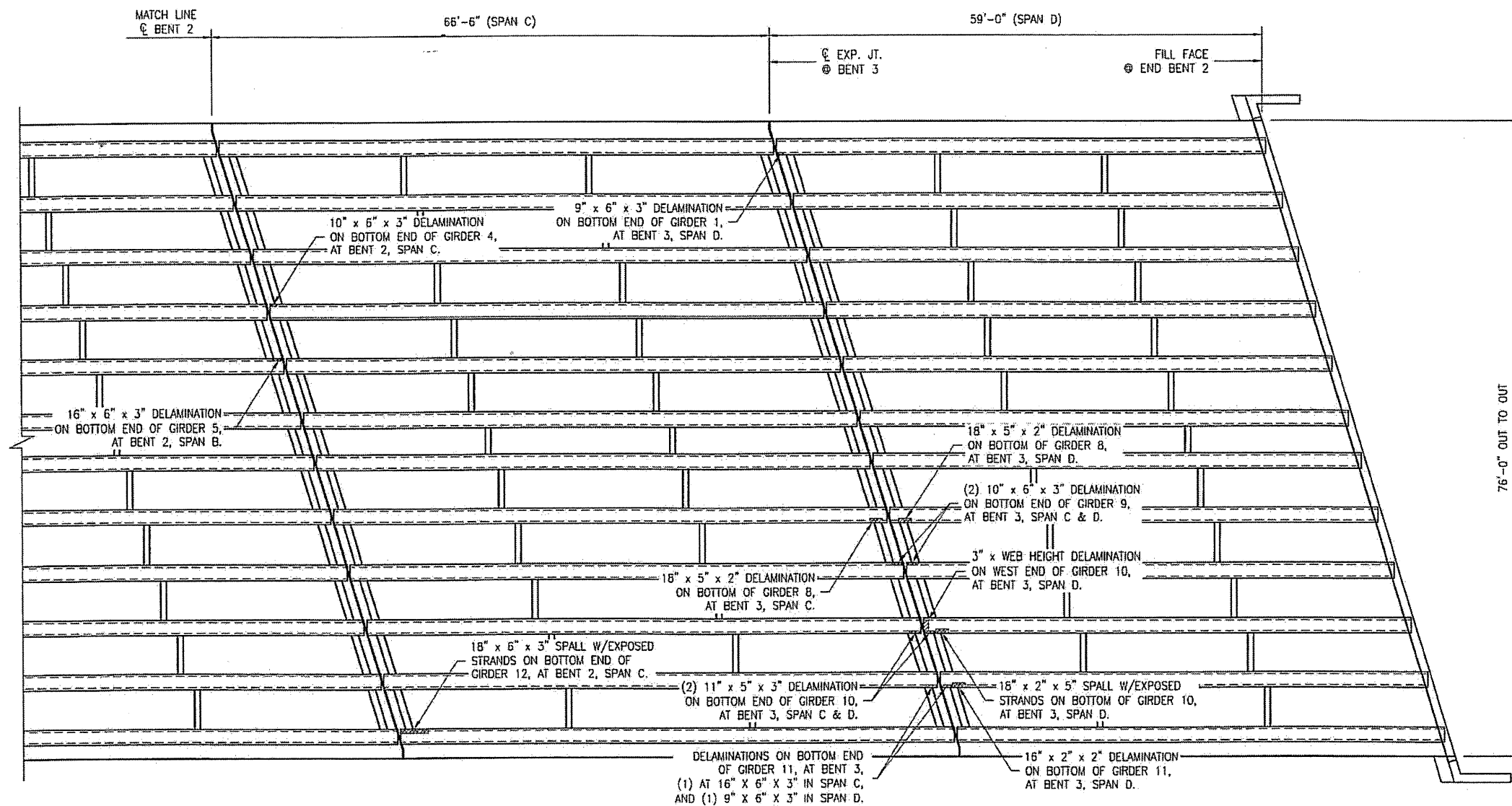
BRIDGE NO. 480026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN
UNDERSIDE
SPANS A AND B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			65

DRAWN BY: F.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11



DECK PLAN UNDERSIDE

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-19 SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS SPANS C & D = 1 CF

NORTH CAROLINA PROFESSIONAL SEAL 14114 ENGINEER ROBERT C. LARSON 3/5/12

PLAN PREPARED BY:



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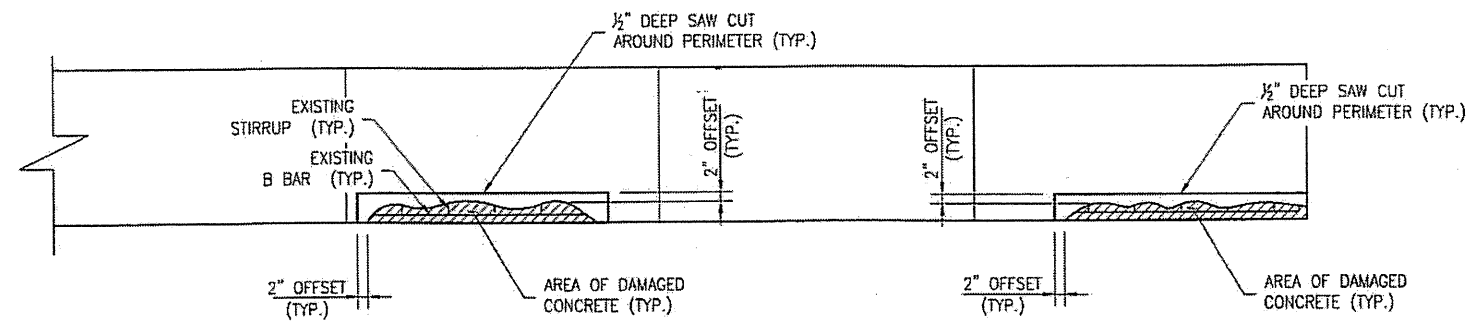
PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

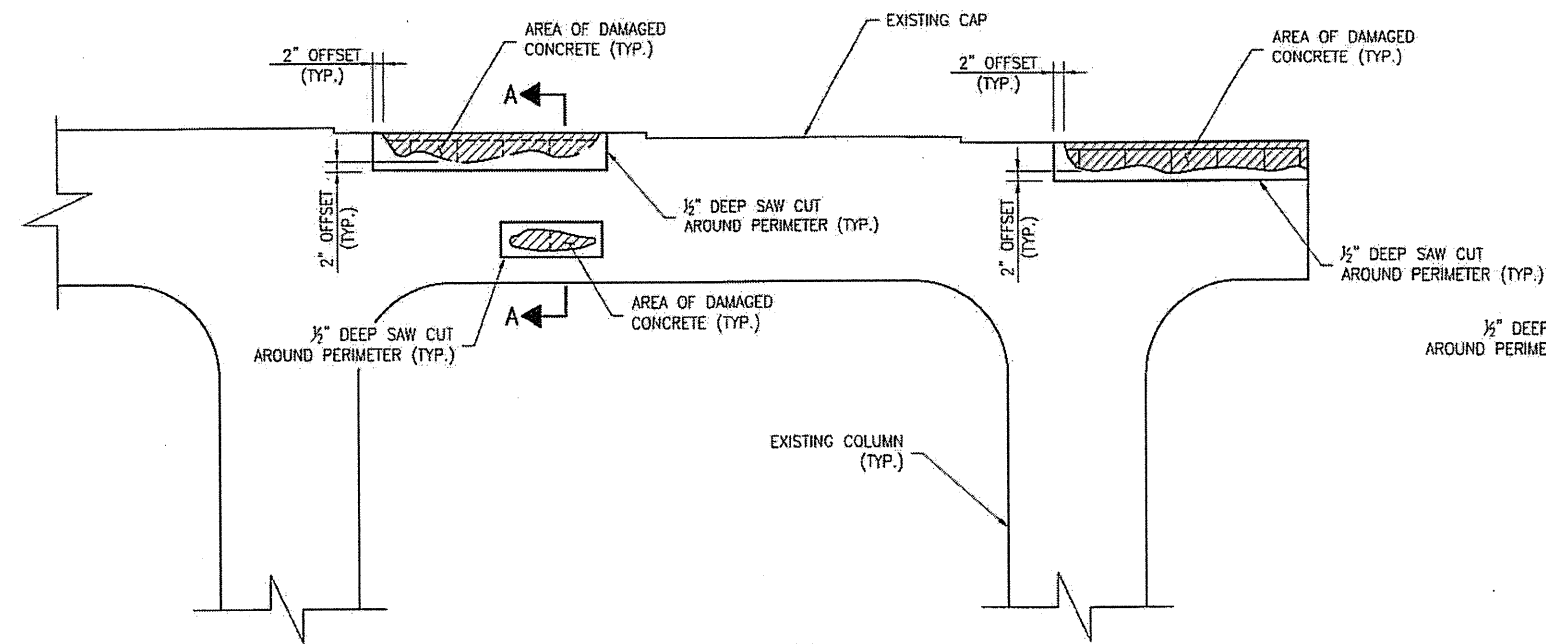
BRIDGE PLAN
UNDERSIDE
SPANS C AND D

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

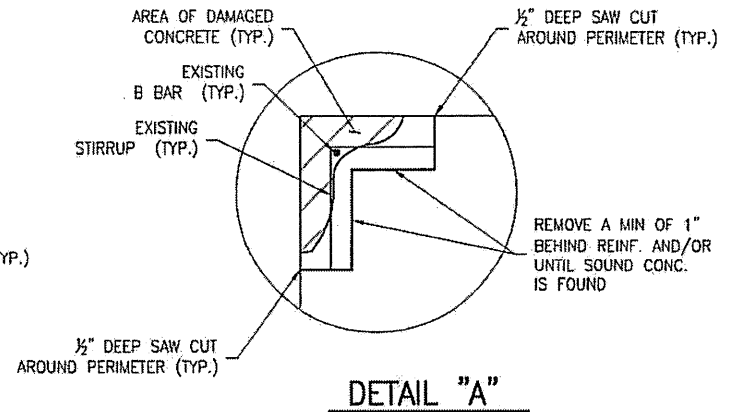
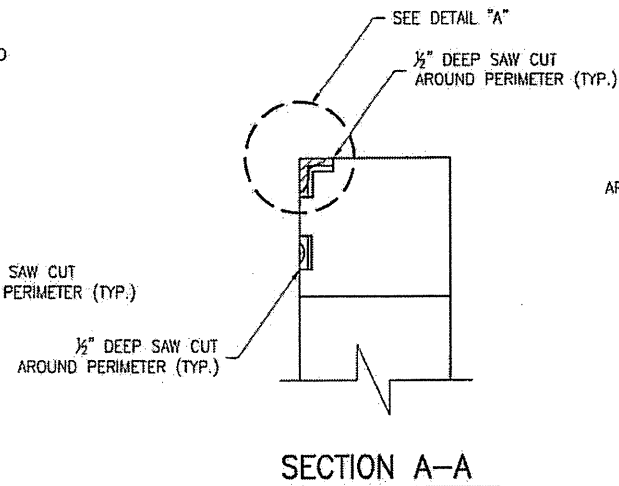
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			65



TYPICAL PARTIAL PLAN



TYPICAL PARTIAL ELEVATION



- NOTES:
1. SPALL/DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE.
 2. REPAIR MATERIAL SHALL BE SHOTCRETE. SEE SPECIAL PROVISIONS.
 3. AT THE CONTRACTOR'S OPTION, USE CONCRETE REPAIR WHERE SHOTCRETE IS DIFFICULT OR IMPRACTICAL. IN ANY EVENT, REPAIRS WILL BE PAID FOR AT THE UNIT PRICE BID FOR SHOTCRETE REPAIR.
 4. REPAIRS OF SUPERSTRUCTURE UNDERSIDE, DIAPHRAGMS, ETC. SIMILAR.

PLAN PREPARED BY:



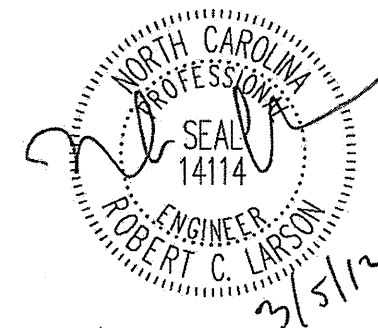
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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

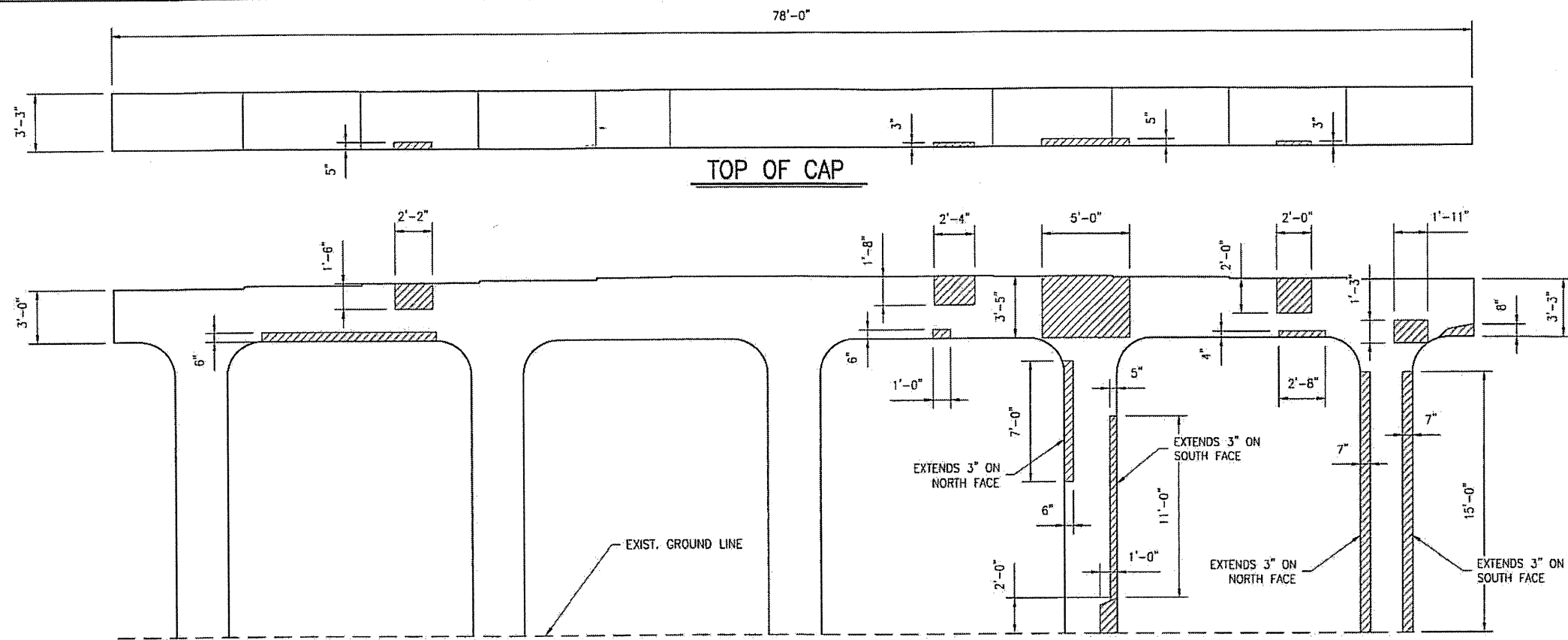
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL
BENT CAP
REPAIR DETAILS



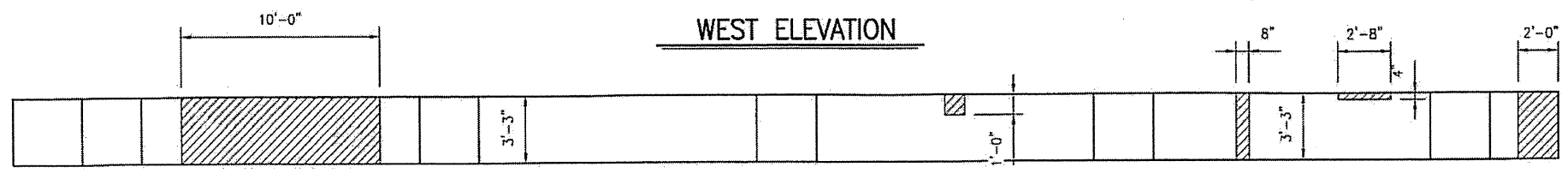
DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			65

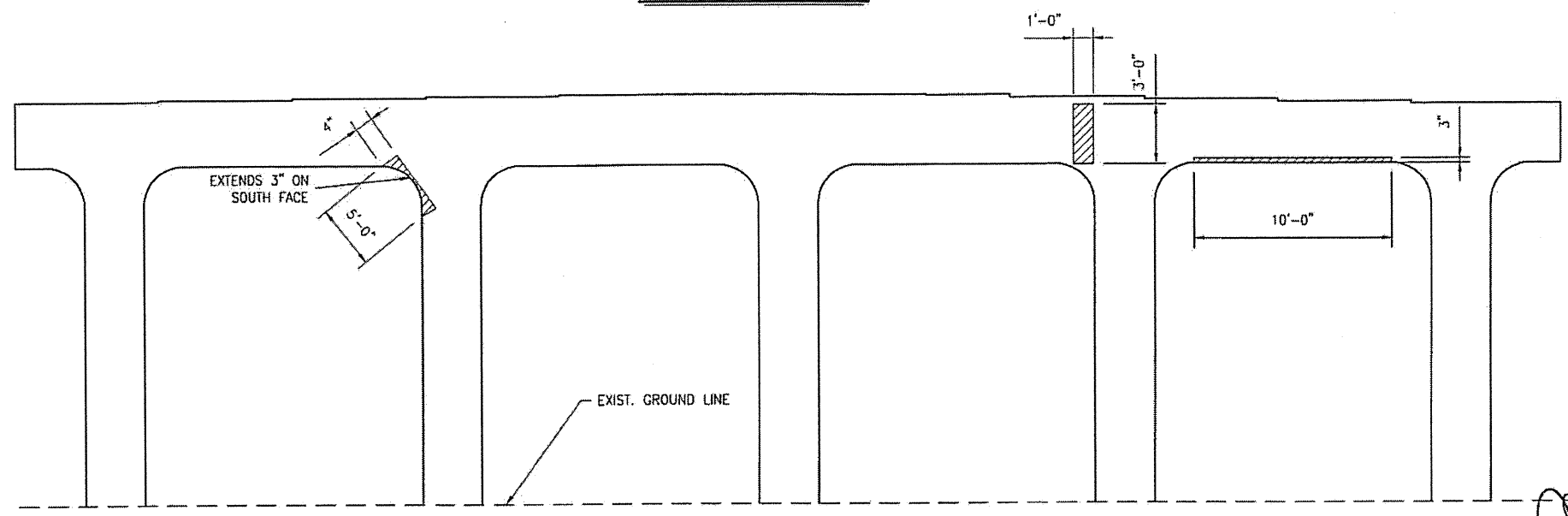


AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-22
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 1 = 40 CF



BOTTOM OF CAP



EAST ELEVATION

PLAN PREPARED BY:



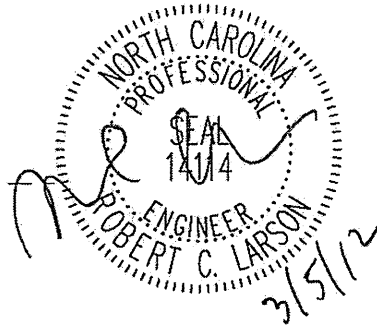
ALPHA & OMEGA GROUP
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

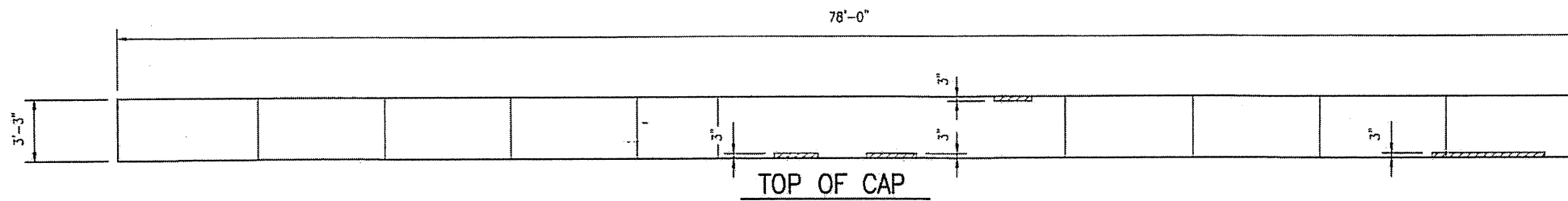
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 1



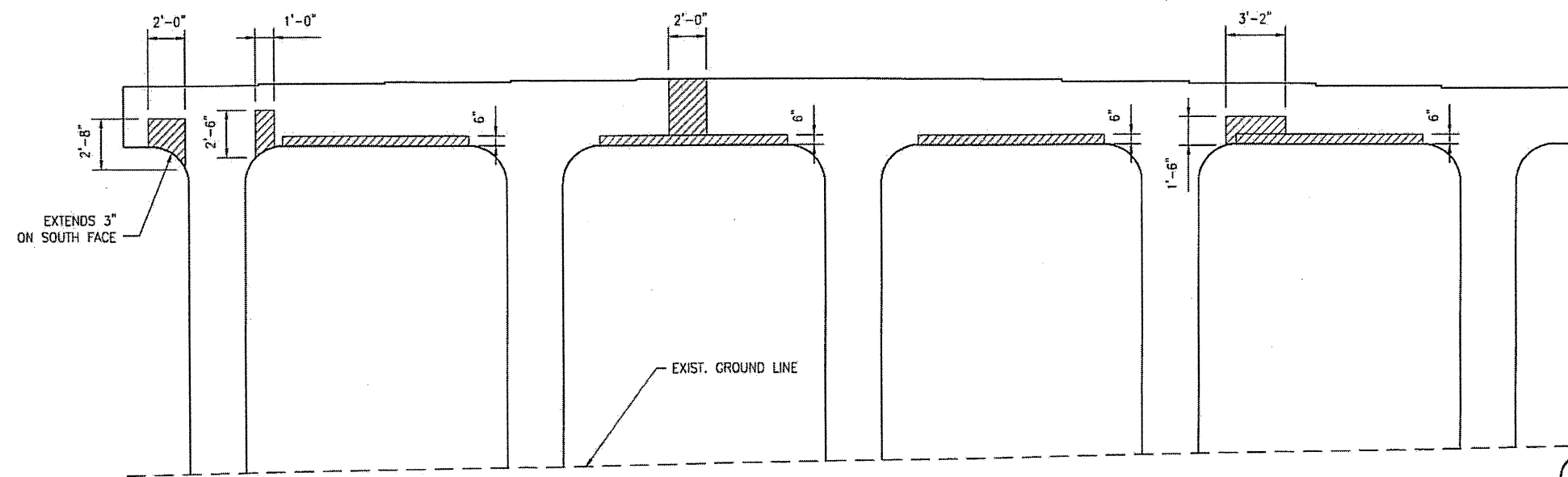
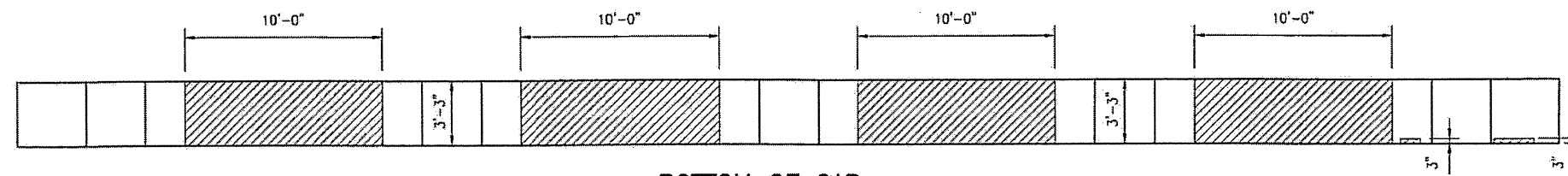
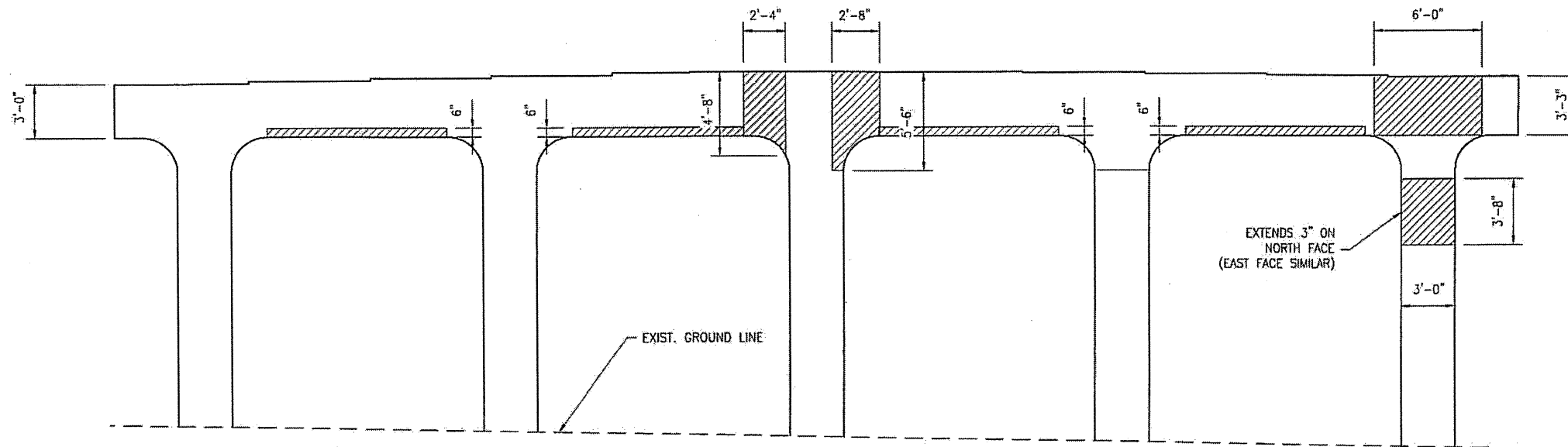
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CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS	
2			4			65	



AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-22
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 2 = 84 CF



PLAN PREPARED BY:



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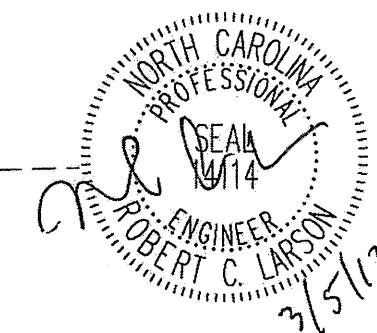
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480026

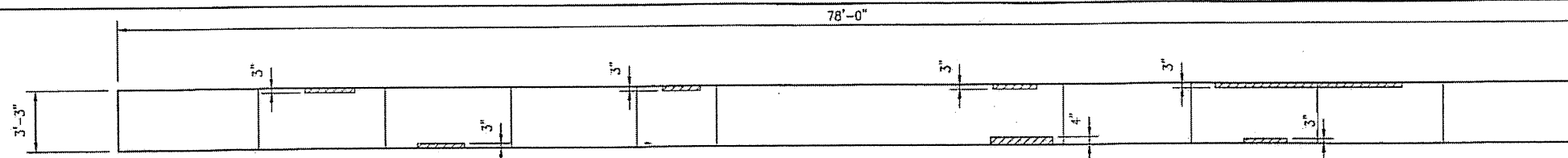
STATE OF NORTH CAROLINA
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RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 2



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CHECKED BY: R.C. LARSON DATE: 12-08-11

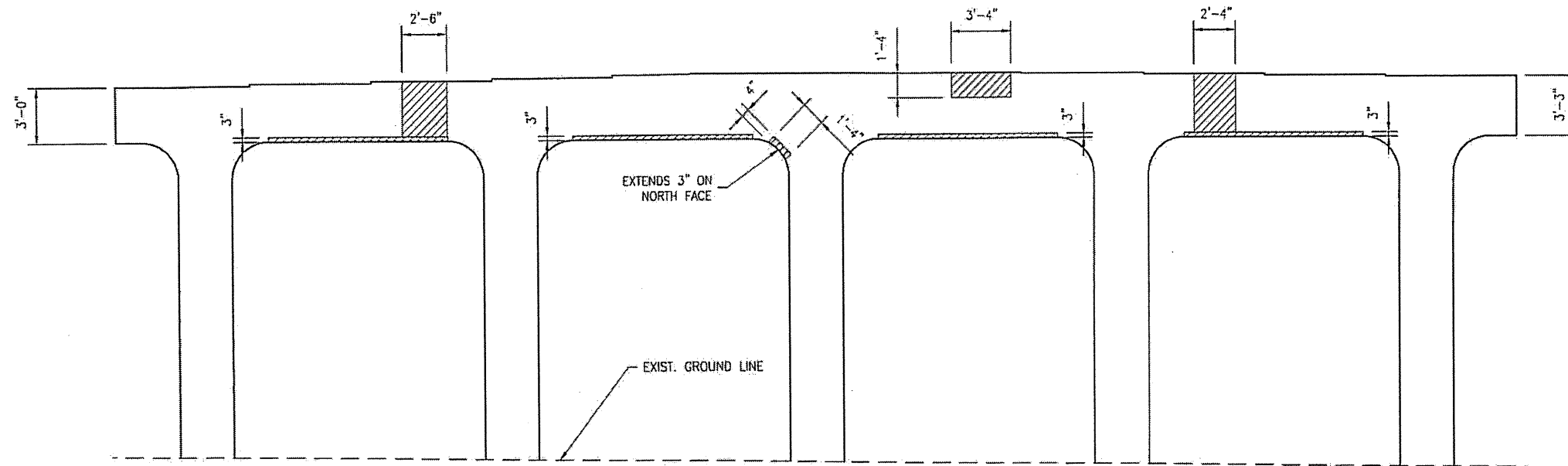
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			65



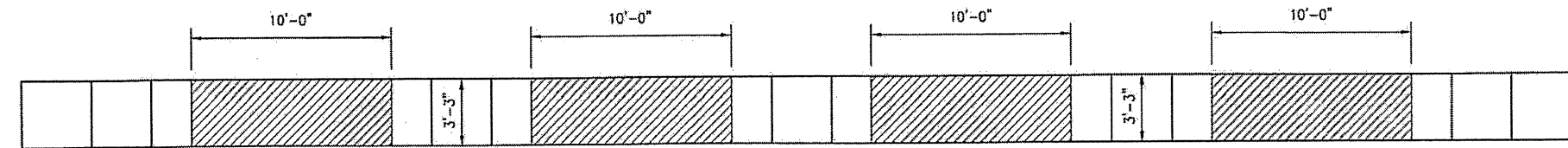
TOP OF CAP

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-22
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

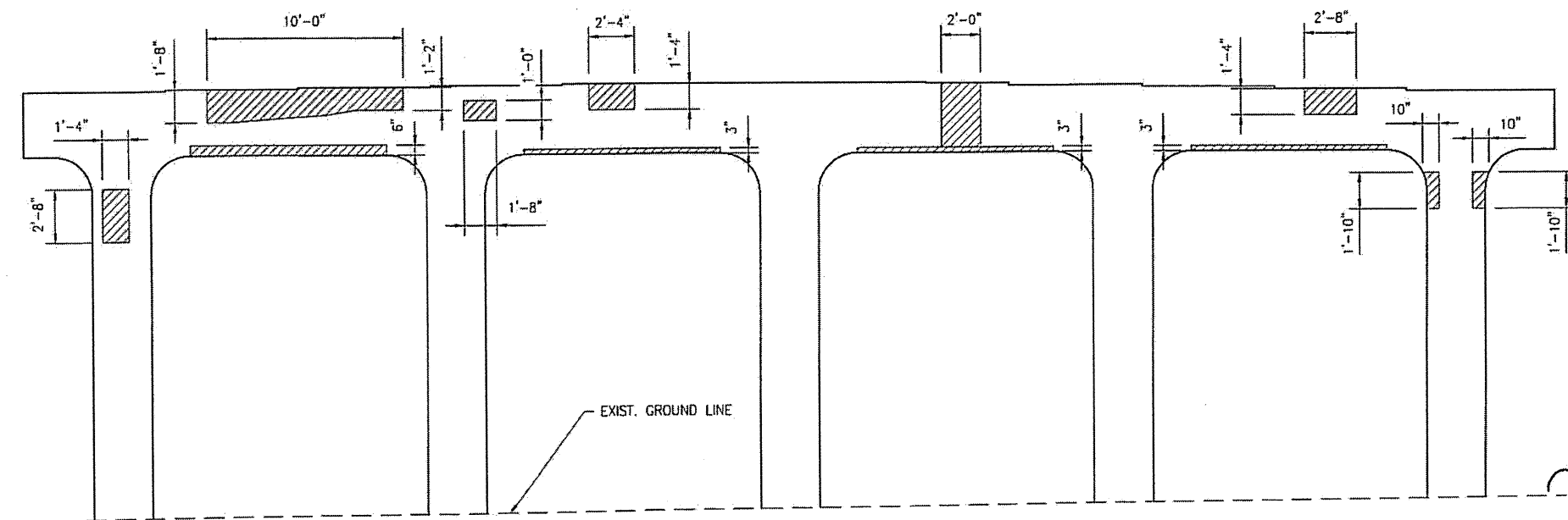
ESTIMATED SHOTCRETE REPAIRS
BENT 3 = 57 CF



WEST ELEVATION



BOTTOM OF CAP



EAST ELEVATION

PLAN PREPARED BY:



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A & O PROJECT #: 2011.031

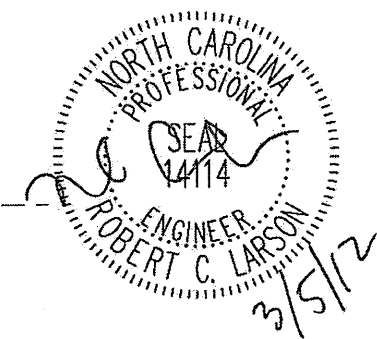
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480026

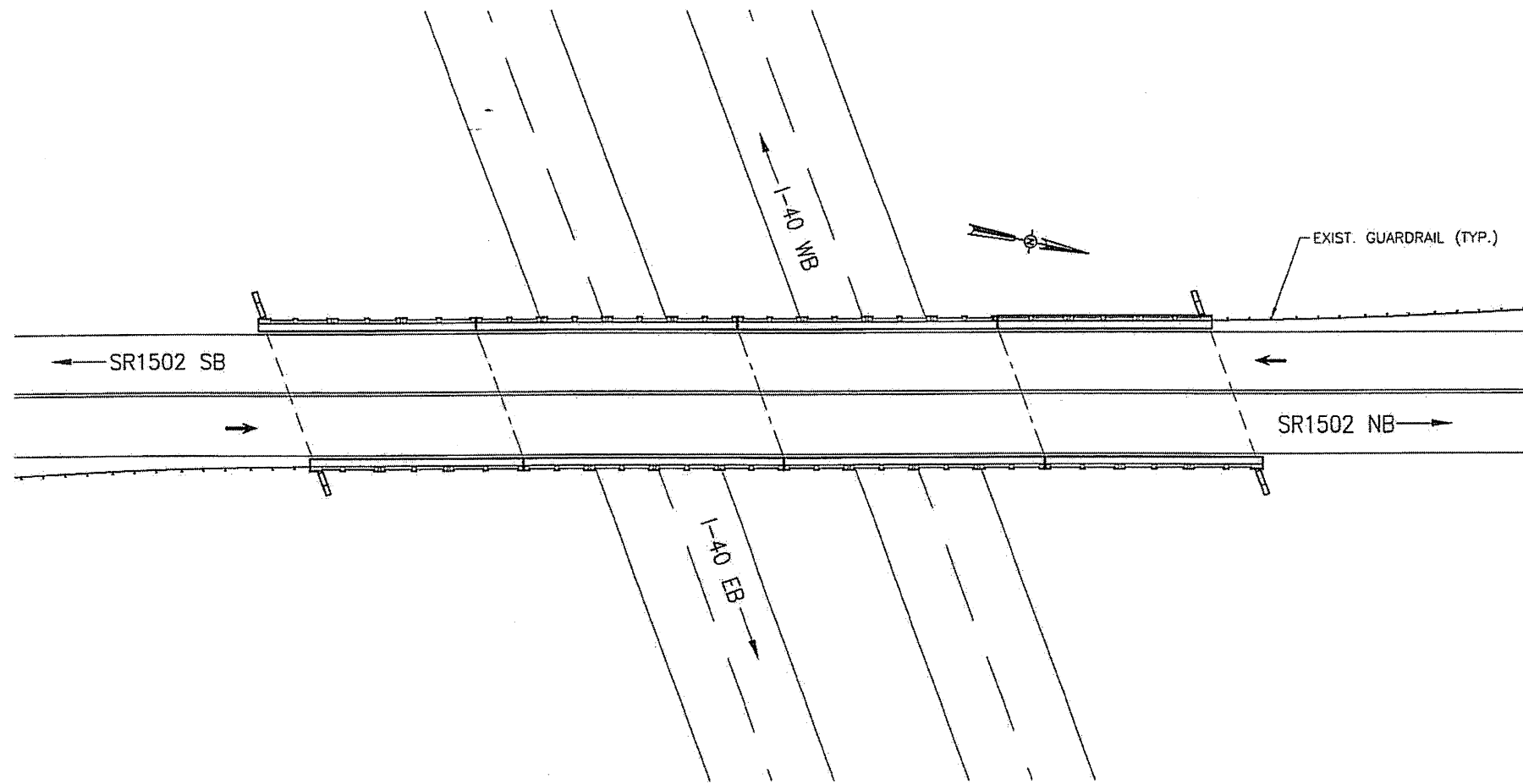
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 3



DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			65



BRIDGE 480050 ON SR1502

LOCATION: BRIDGE 480050, SR1502 OVER I-40, 0.1 MILES SOUTH OF JUNCTION WITH SR1501.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

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Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

TOTAL BILL OF MATERIAL

SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	SHOTCRETE REPAIRS	INCIDENTAL MILLING
SQ. YD.	SQ. YD.	CU. YD.	SQ. YD.	SQ. FT.	LUMP SUM	TON	CU. FT.	SQ. YD.
555	555	23	555	4,900	L.S.	48	121	574

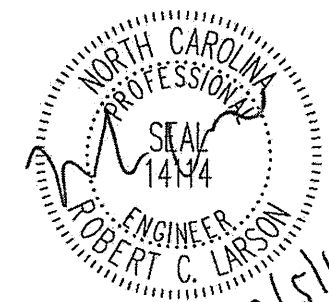
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480050

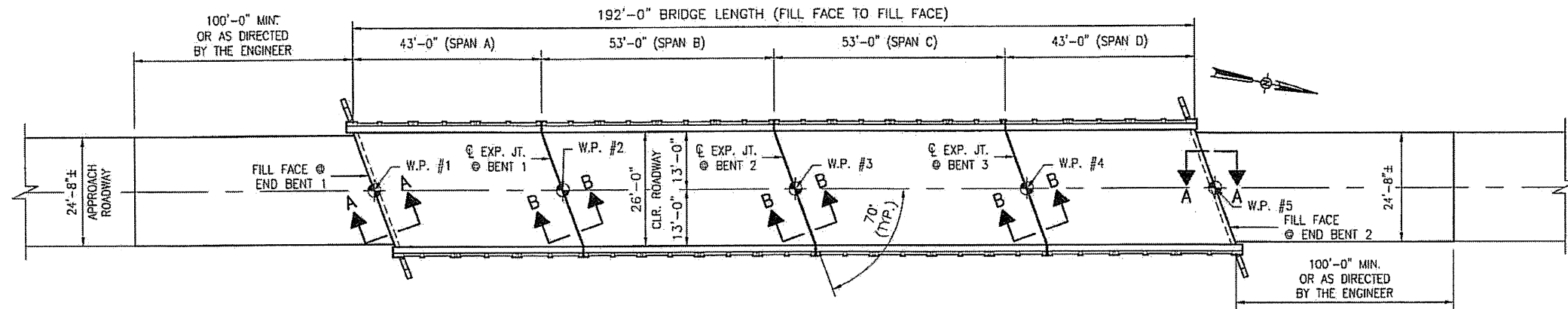
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

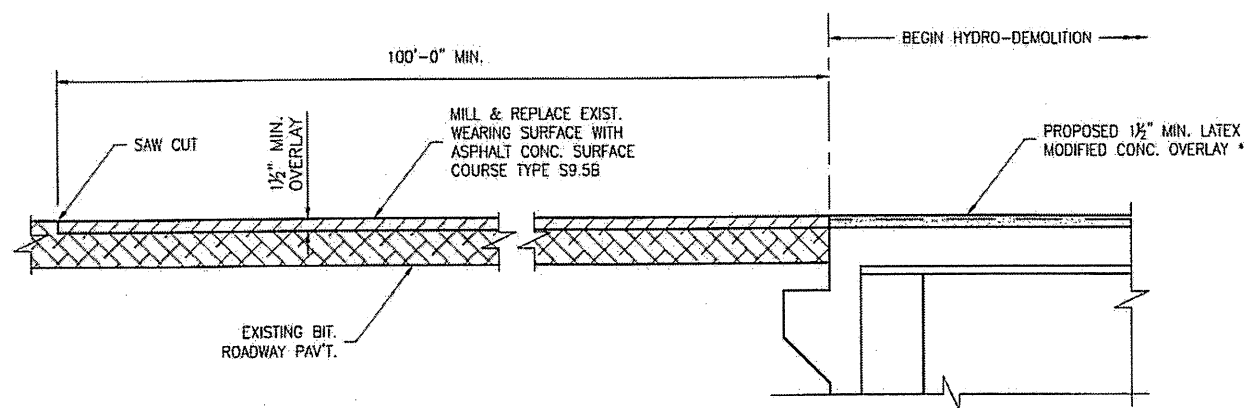


DRAWN BY: F.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			65



PLAN OF SPANS A - D



SECTION A-A

* RAISE EXISTING CONC. DECK ELEVATION BY 1/2".

NOTES:

1. EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
2. FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
3. THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
4. THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK. SEE DETAIL, SHEET S-29.
5. FOR VERY EARLY STRENGTH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
6. FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
7. FOR SECTION B-B, SEE SHEET S-28.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

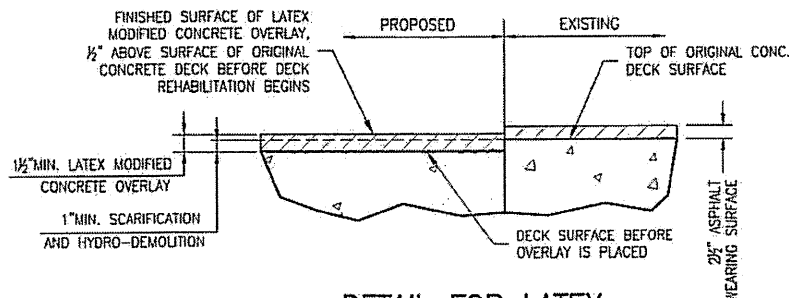
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480050

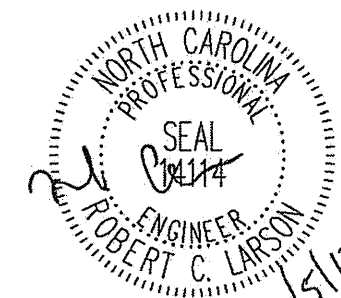
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN
AND DETAILS



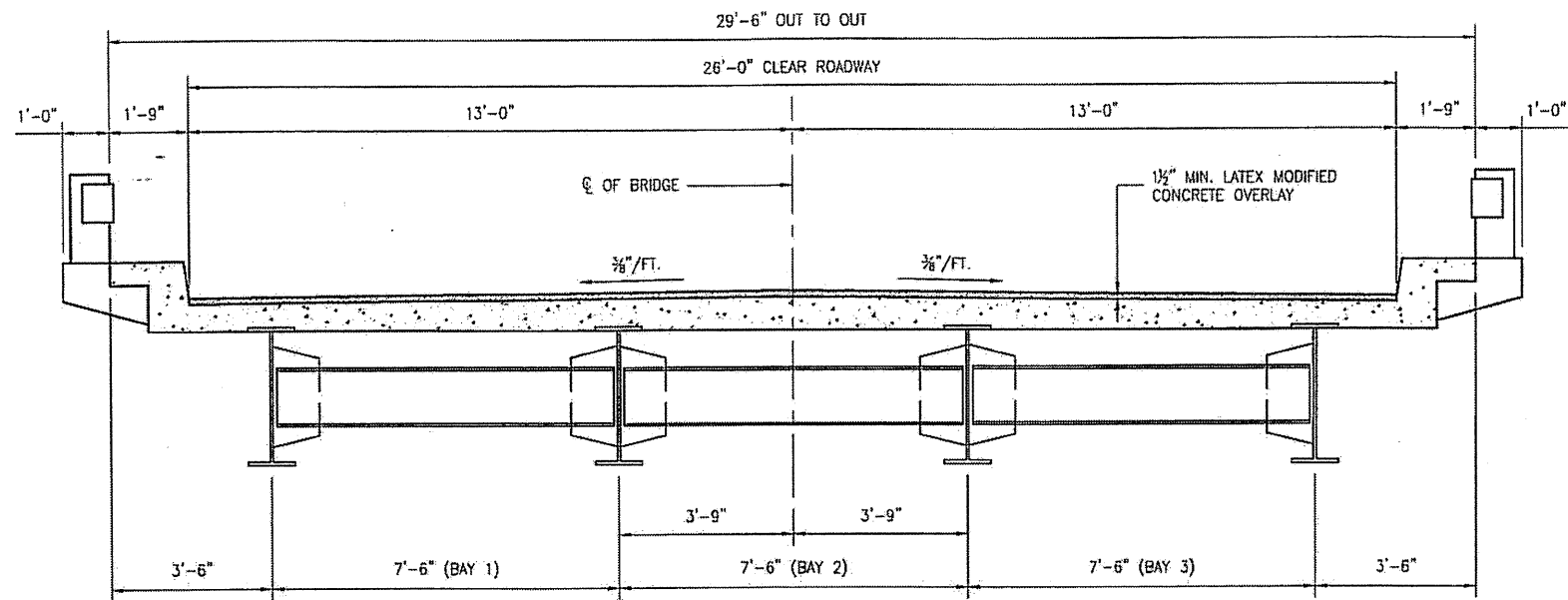
DETAIL FOR LATEX MODIFIED CONC. OVERLAY

NOTE: EXISTING DEPTH OF CONC. COVER IS UNKNOWN. CONTRACTOR TO MAKE HIS OWN DETERMINATION.

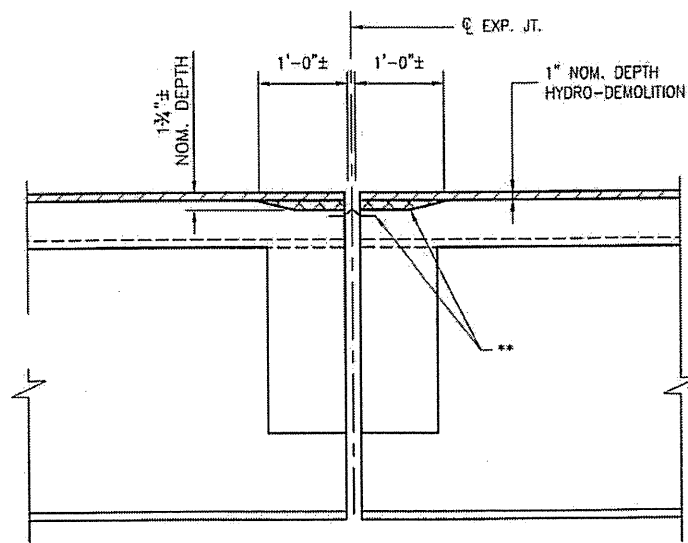


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			65



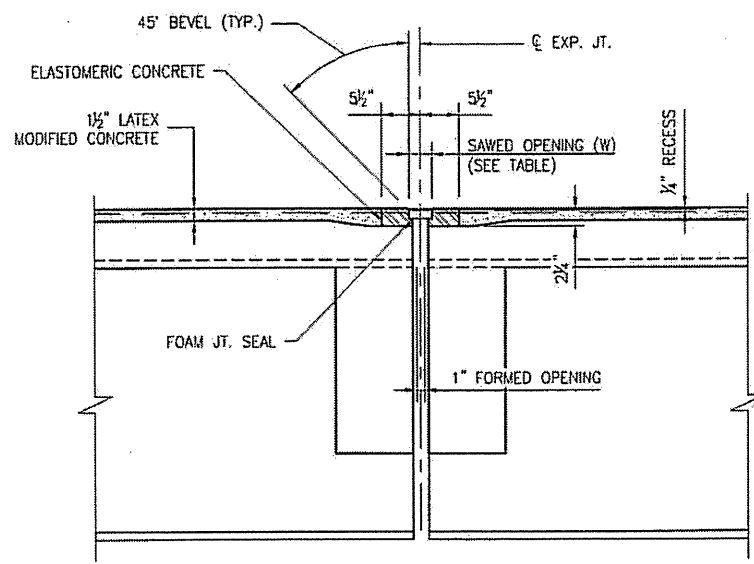
TYPICAL SECTION SPANS A - D



SECTION B-B

EST. MAX. EXISTING JOINT DEMOLITION
 NOTES: RETAIN ALL EXIST. REINF. STEEL.
 CLEAN AND REPAIR AS REQ'D.
 ALL EXISTING JT. SEAL MATERIALS
 ARE TO BE COMPLETELY REMOVED.

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.



SECTION B-B

JOINT SEAL
 NOTES: USE 2 1/2" WIDE UNCOMPRESSED
 FOAM JOINT SEAL MATERIAL.

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP	45° F	60° F	90° F
BENT 1	1 1/16"	1 7/8"	1 3/4"
BENT 2	2"	1 7/8"	1 5/8"
BENT 3	1 1/16"	1 7/8"	1 3/4"

PLAN PREPARED BY:



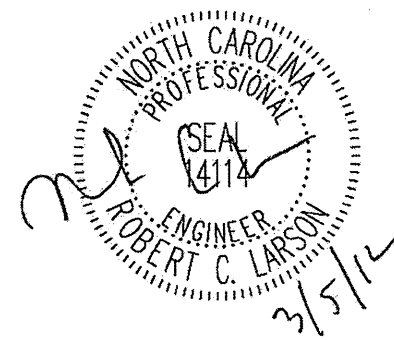
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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
 BRIDGE NO. 480050

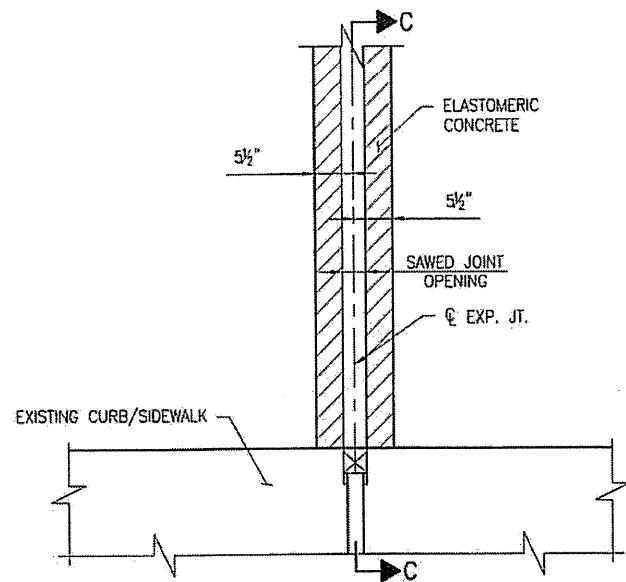
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 AND DETAILS

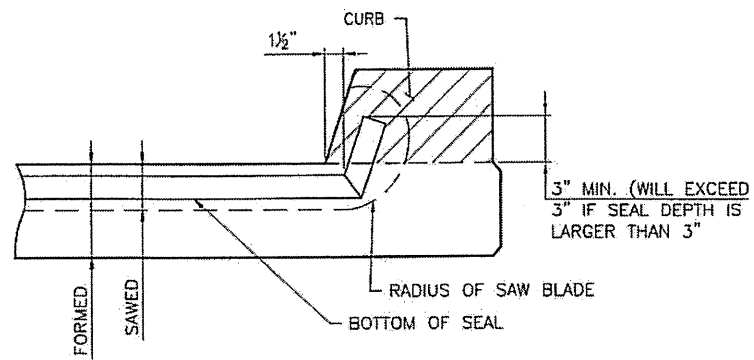


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO	BY:	DATE:	NO	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			65

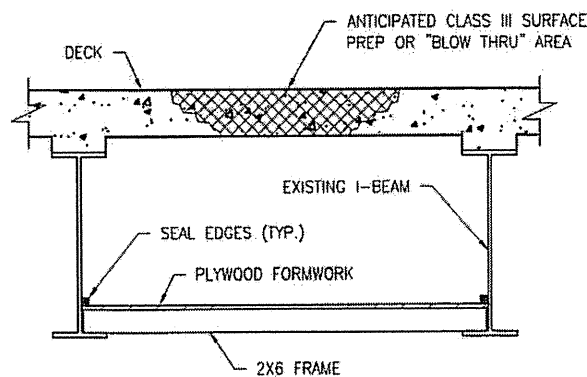


PARTIAL PLAN @ JOINT



SECTION C-C

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE CURB.



TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.
 SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.
 COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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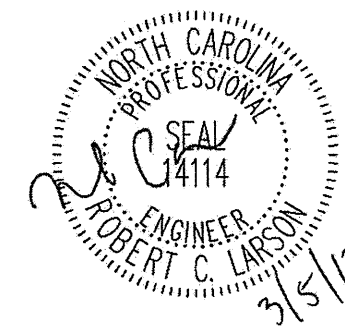
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IREDELL COUNTY

BRIDGE NO. 480050

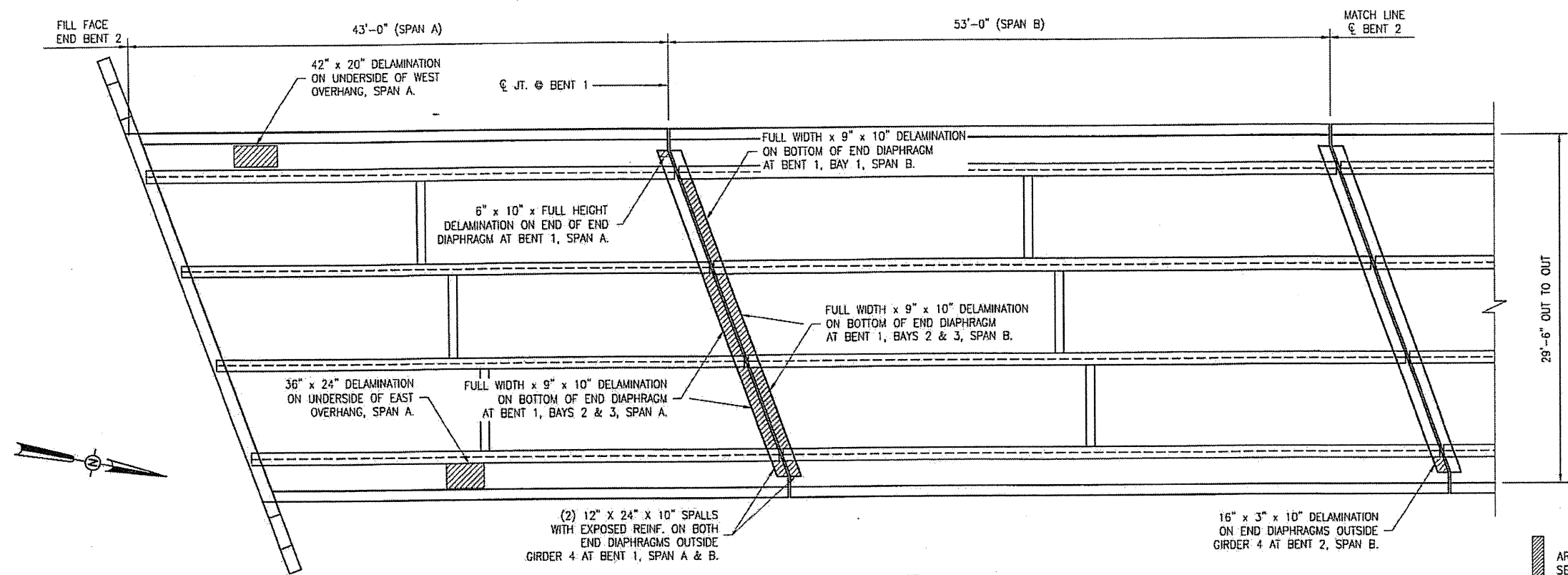
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EXPANSION JOINT
 DETAILS



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 CHECKED BY: R.C. LARSON DATE: 12-08-11

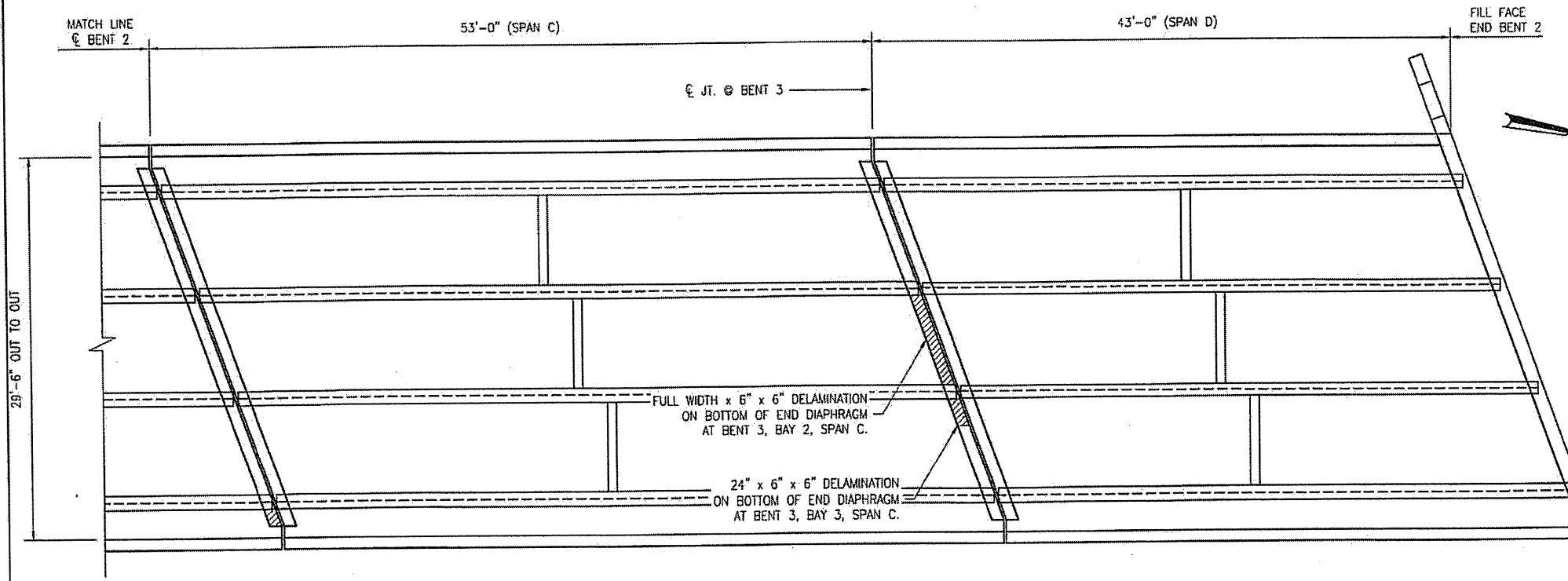
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			65



DECK PLAN UNDERSIDE

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-31. SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS SPANS A THRU D = 34 CF



DECK PLAN UNDERSIDE

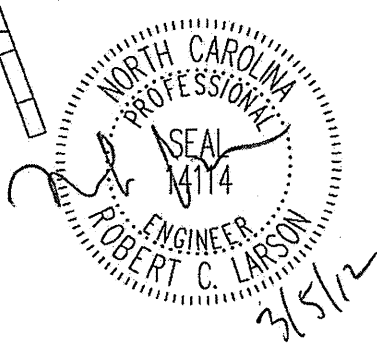
PLAN PREPARED BY:

ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS
 4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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PROJECT NO. WBS 17BP.12.P.3
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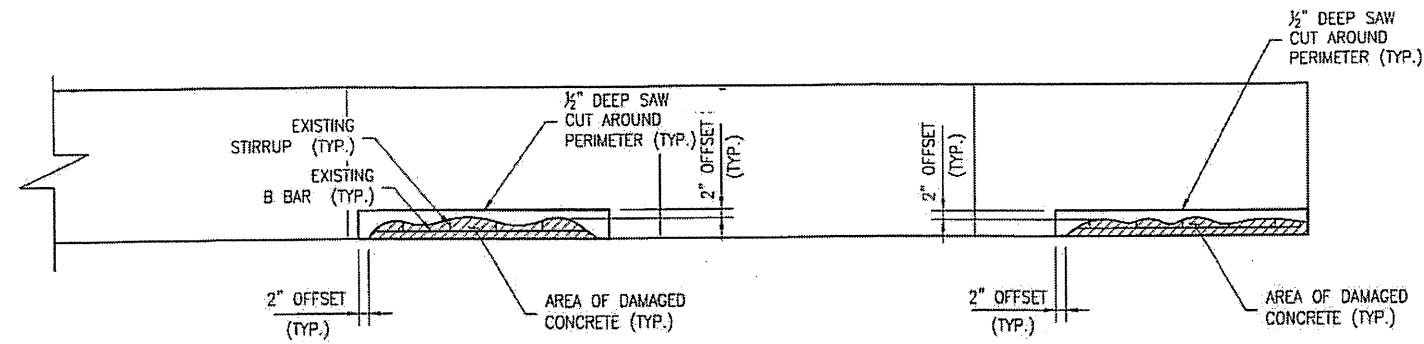
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BRIDGE PLAN
 UNDERSIDE
 SPANS A - D

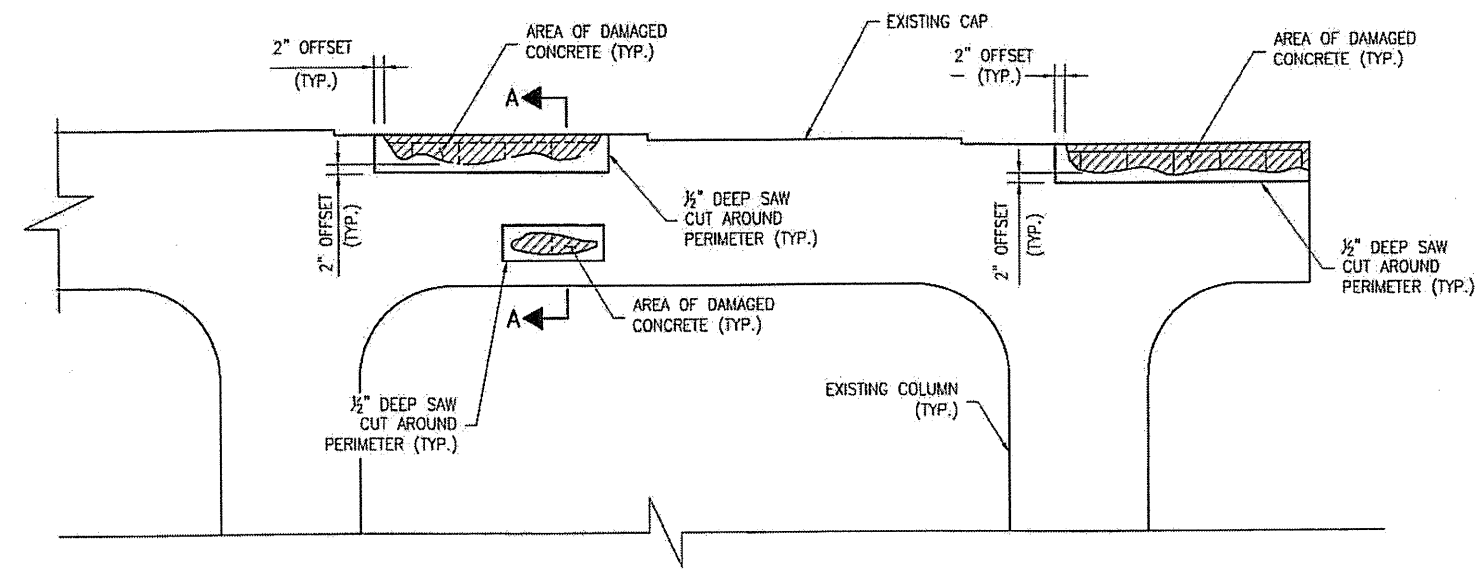


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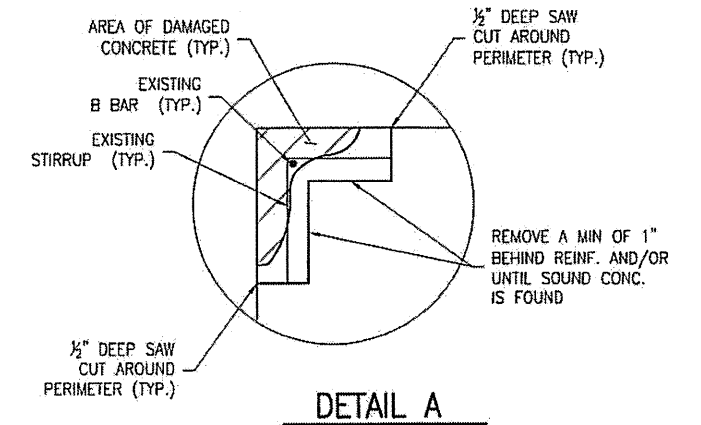
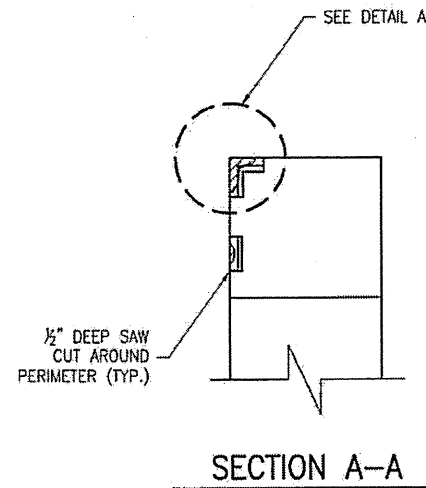
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			65



TYPICAL PARTIAL PLAN



TYPICAL PARTIAL ELEVATION



- NOTES:
1. SPALL/DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE.
 2. REPAIR MATERIAL SHALL BE SHOTCRETE. SEE SPECIAL PROVISIONS.
 3. AT THE CONTRACTOR'S OPTION, USE CONCRETE REPAIR WHERE SHOTCRETE IS DIFFICULT OR IMPRACTICAL. IN ANY EVENT, REPAIRS WILL BE PAID FOR AT THE UNIT PRICE BID FOR SHOTCRETE REPAIR.
 4. REPAIRS OF SUPERSTRUCTURE UNDERSIDE, DIAPHRAGMS, ETC. SIMILAR.

PLAN PREPARED BY:



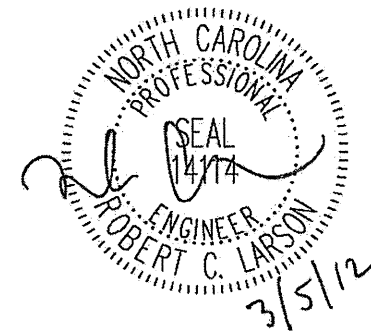
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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480050

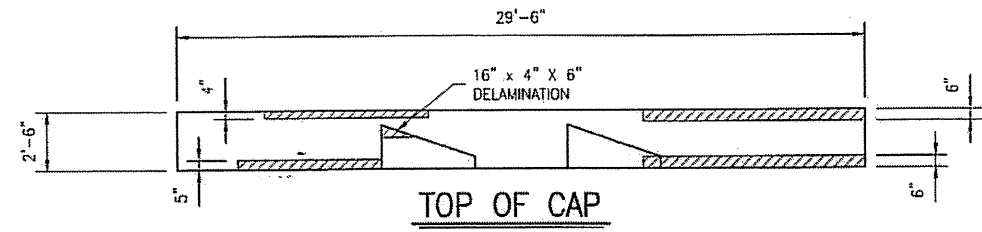
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL
BENT CAP
REPAIR DETAILS



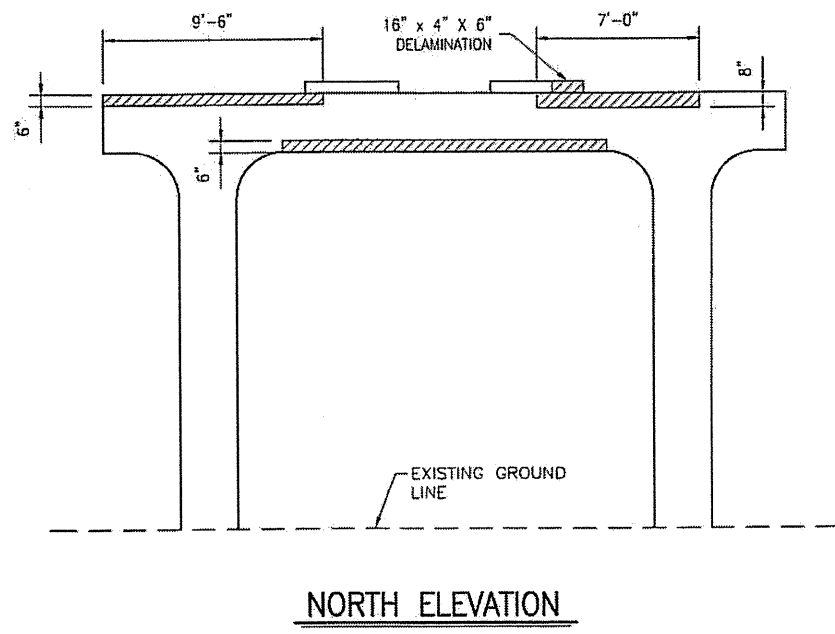
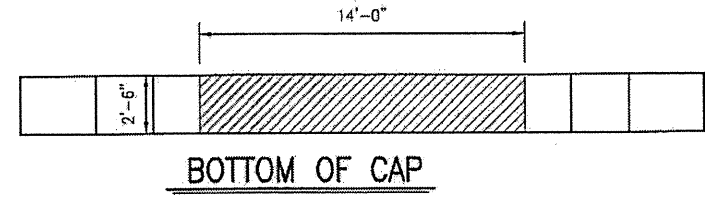
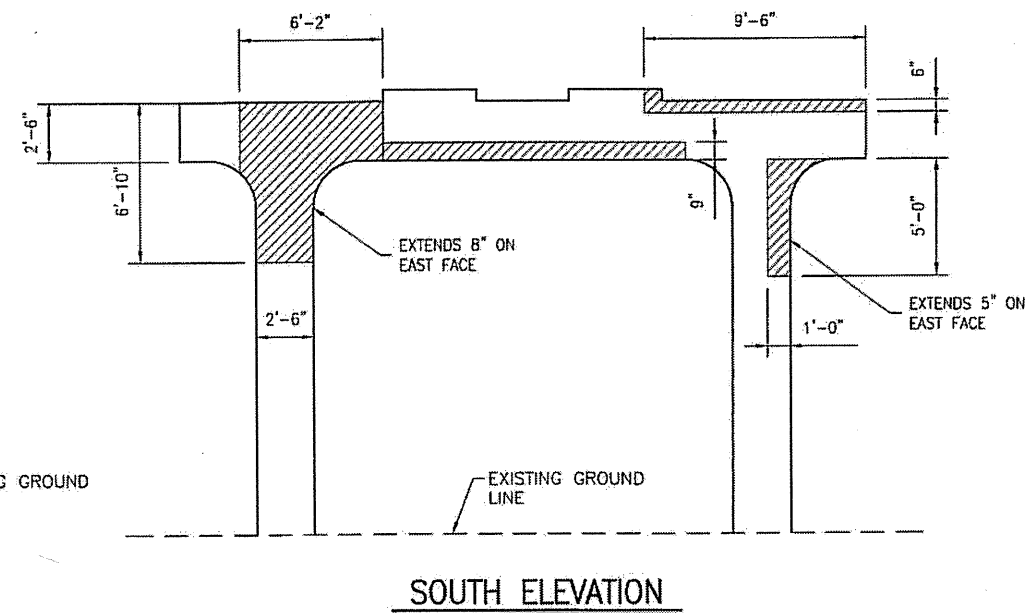
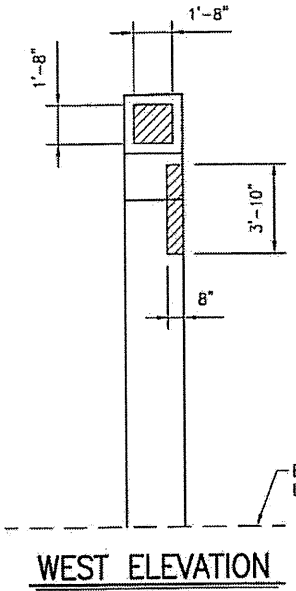
DRAWN BY: F.E. ROBBINS DATE: 12-07-11
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			65



AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-31
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 1 = 48 CF



PLAN PREPARED BY:

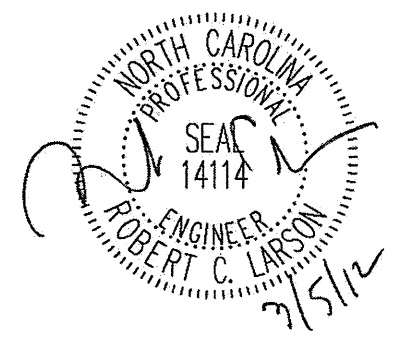


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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480050

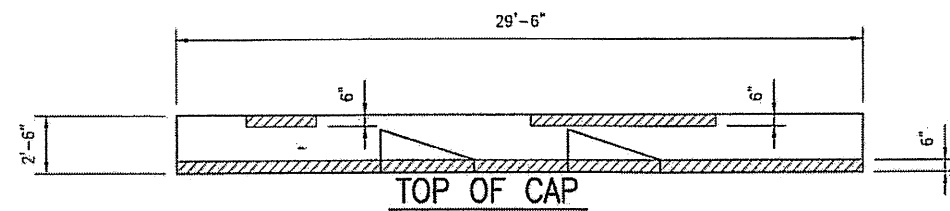
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 1



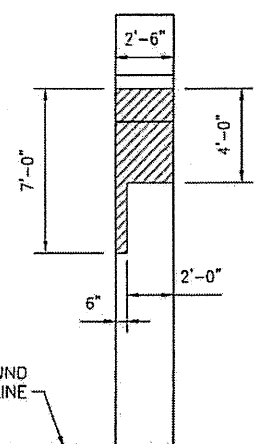
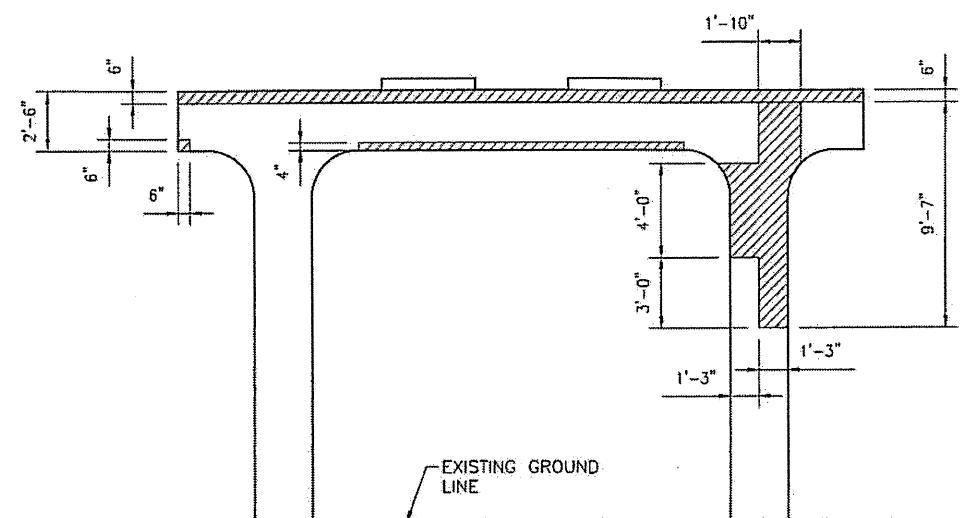
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CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			65



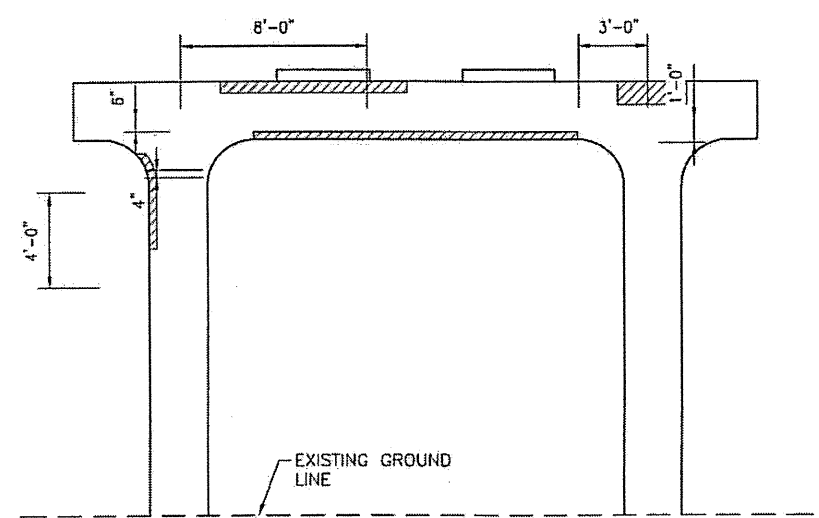
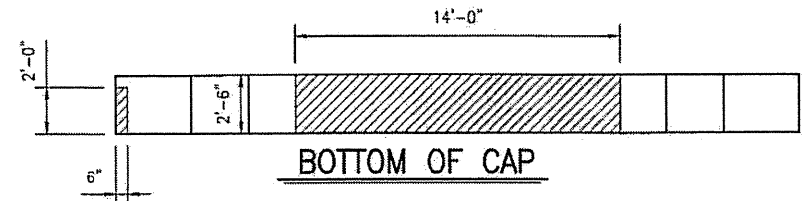
AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-31
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 2 = 36 CF



SOUTH ELEVATION

EAST ELEVATION



NORTH ELEVATION

PLAN PREPARED BY:



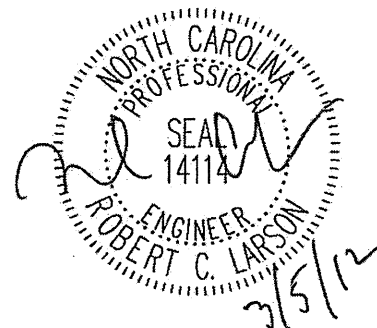
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IREDELL COUNTY
BRIDGE NO. 480050

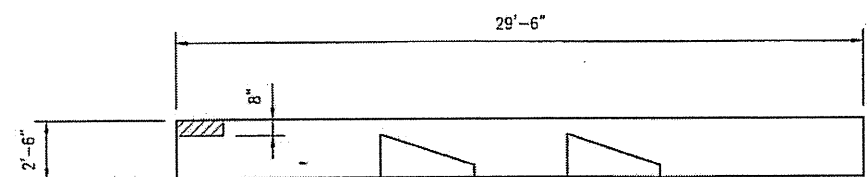
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 2



REVISIONS						SHEET NO. S-33
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			65

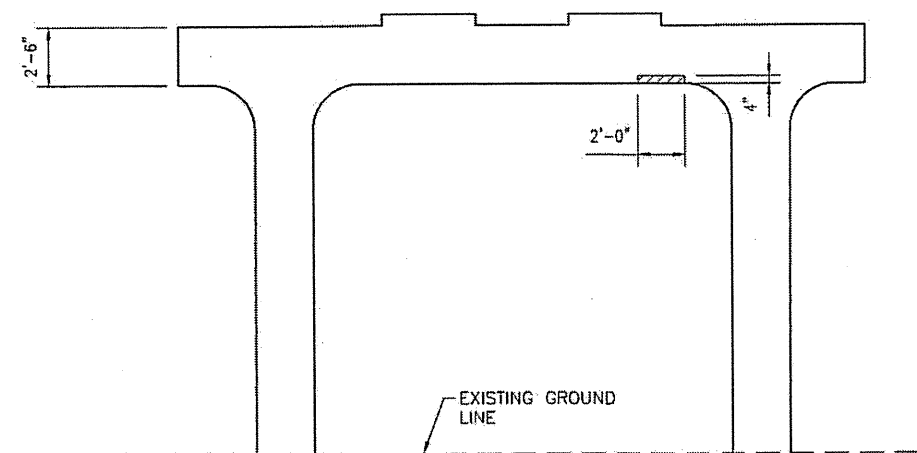
DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11



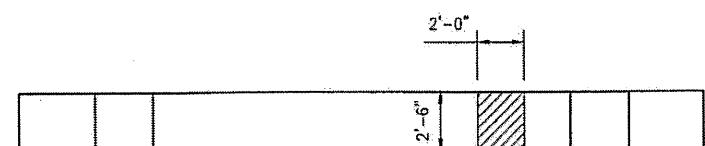
TOP OF CAP

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-31
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

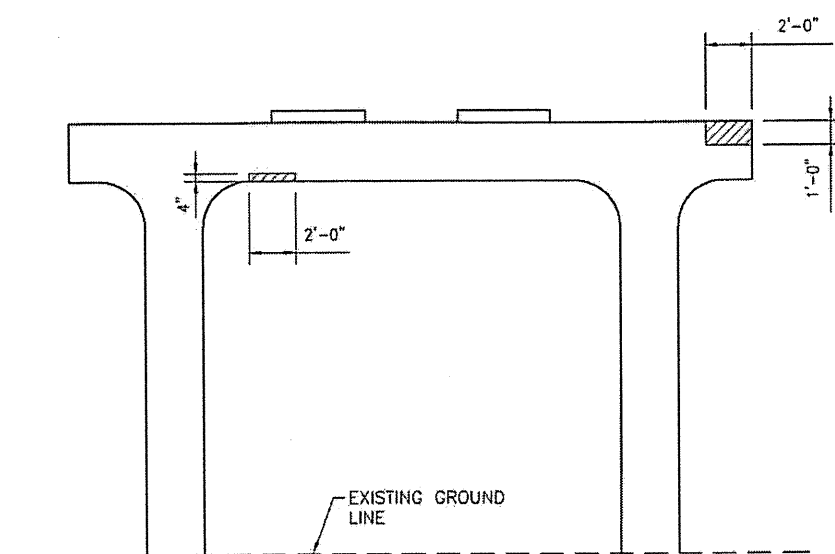
ESTIMATED SHOTCRETE REPAIRS
BENT 3 = 3 CF



SOUTH ELEVATION



BOTTOM OF CAP



NORTH ELEVATION

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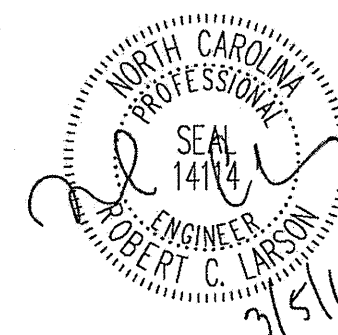
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IREDELL COUNTY

BRIDGE NO. 480050

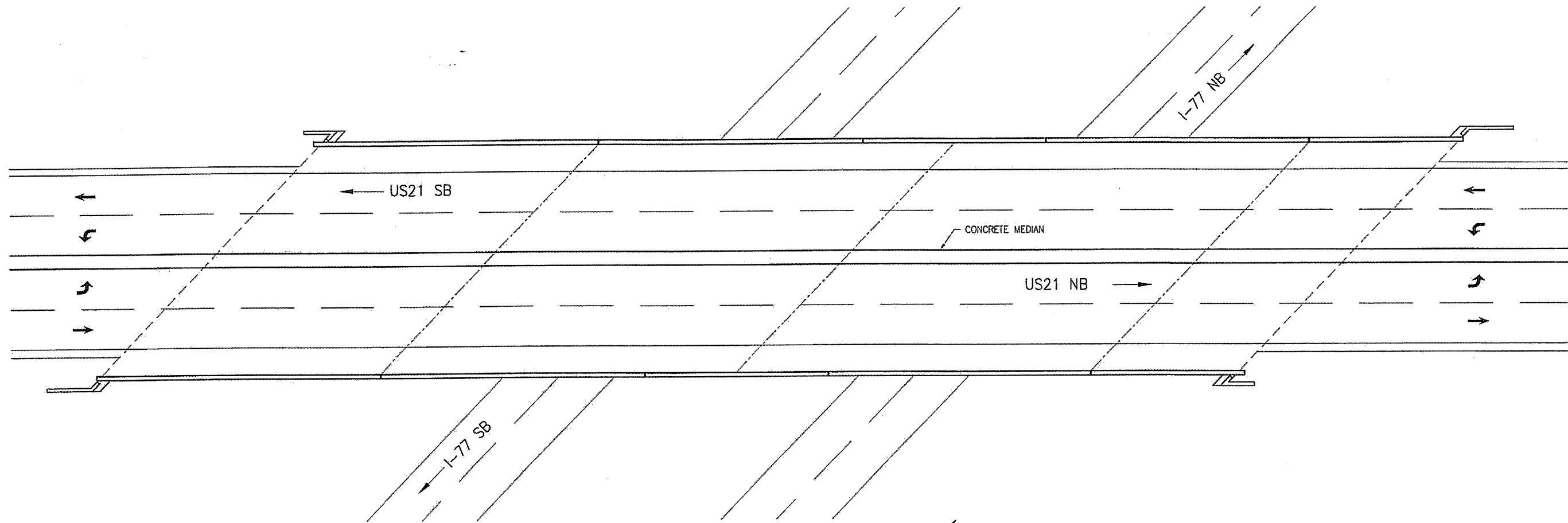
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 3



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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			65



BRIDGE 480071 ON US21
 LOCATION: BRIDGE 480071, US21 OVER I-77, 2.7
 MILES NORTH OF JUNCTION WITH I-40.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS

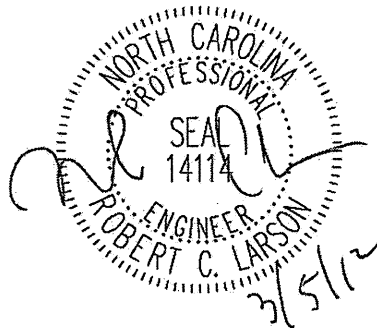
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 Phone 919 981 0310 Fax 919 981 0451
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 A&O PROJECT #: 2011.031

TOTAL BILL OF MATERIAL							
SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	FOAM JOINT SEALS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. YD.	SQ. YD.	CU. YD.	SQ. YD.	SQ. FT.	LUMP SUM	TON	SQ. YD.
3,301	3,301	183	3,301	28,418	L.S.	32	377

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
 BRIDGE NO. 480071

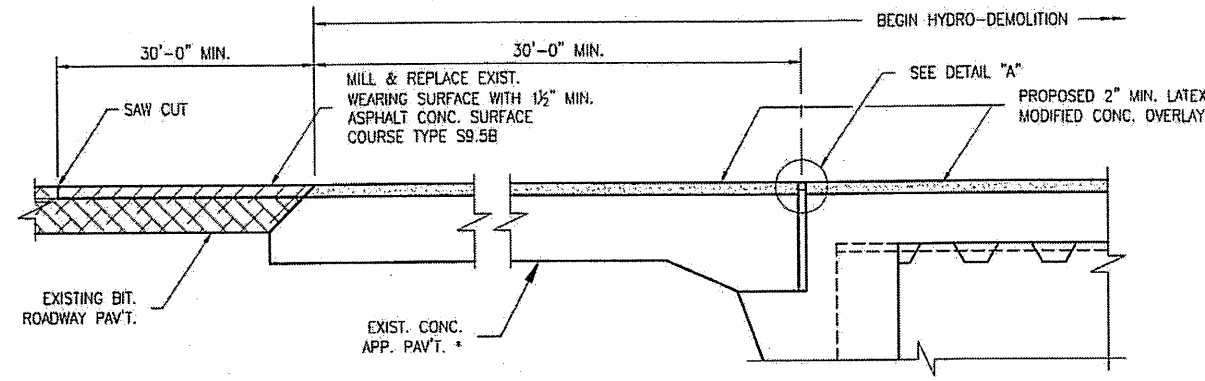
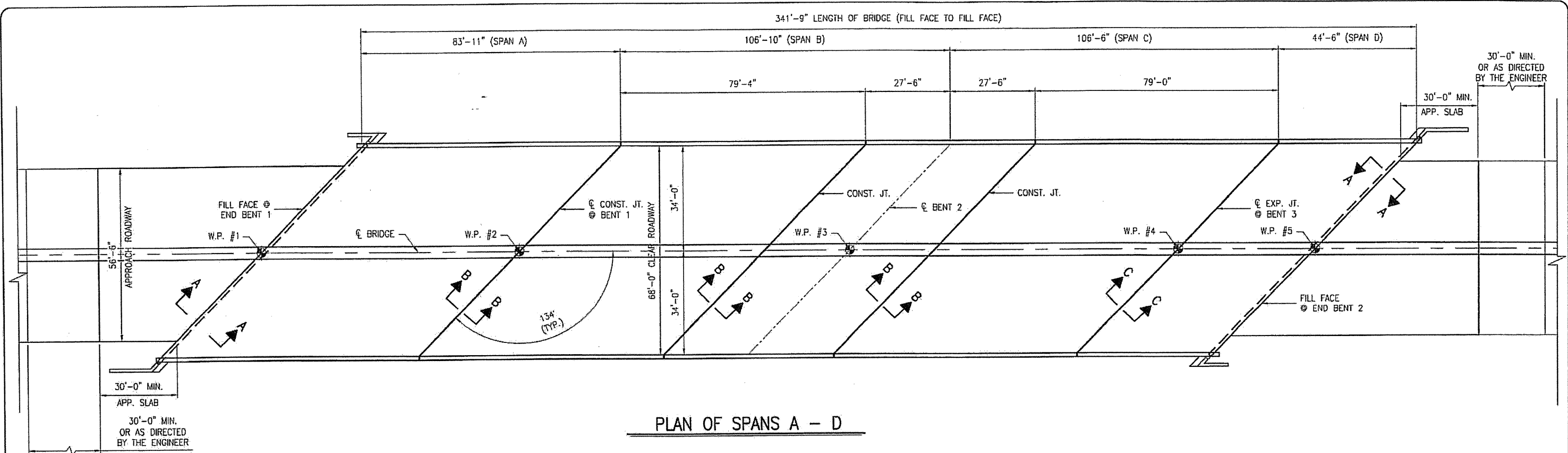
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

LOCATION SKETCH
 AND TOTAL
 BILL OF MATERIAL



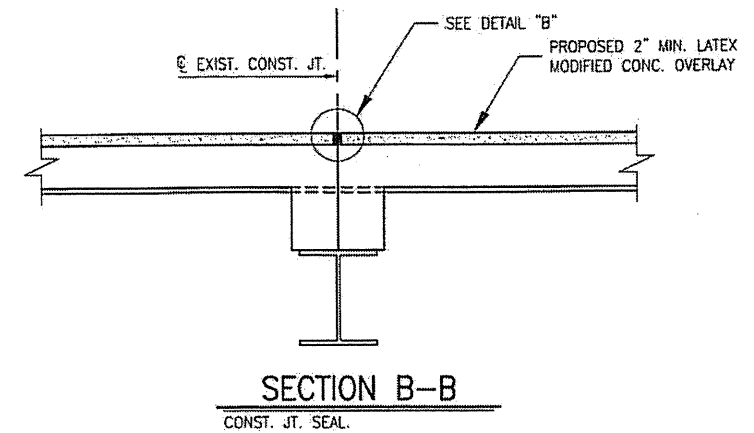
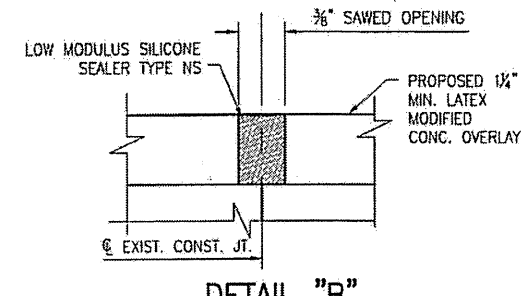
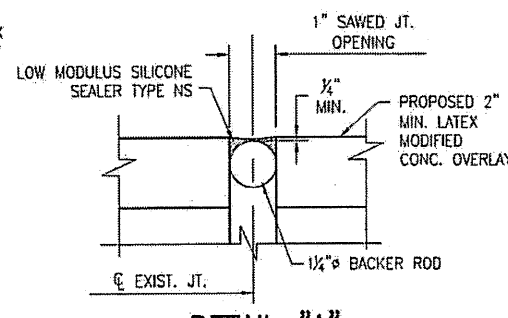
DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO	BY:	DATE:	NO	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			65



SECTION A-A

* MILL EXIST. BRIDGE APPROACH PAV'T SURFACE AND OVERLAY W/ 2" MIN. OF LATEX MODIFIED CONCRETE.



- NOTES:
- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
 - FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
 - THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
 - THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THRU OF THE DECK. SEE DETAIL, SHEET S-38.
 - FOR LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
 - FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 - 1 1/2" BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT TO CONSTRUCT CONCRETE JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



PLAN PREPARED BY:

ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS
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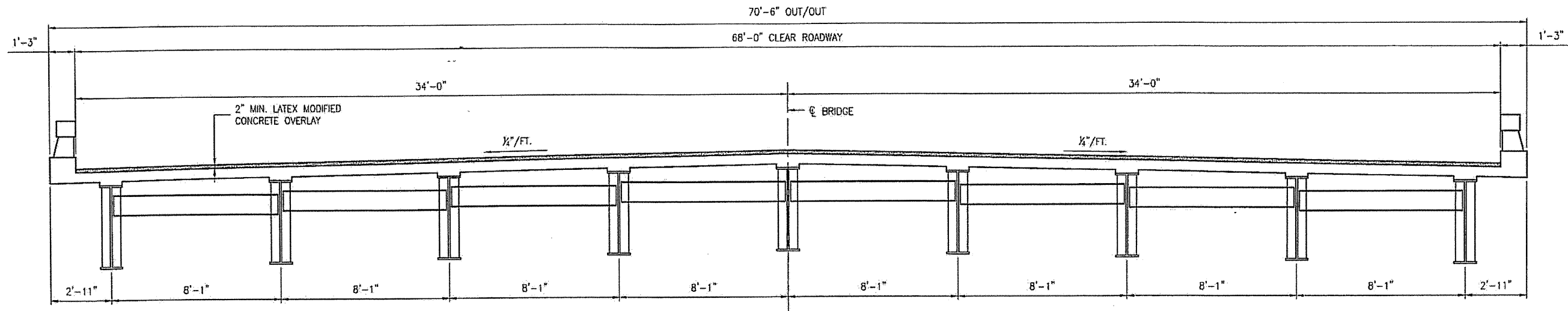
PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
 BRIDGE NO. 480071

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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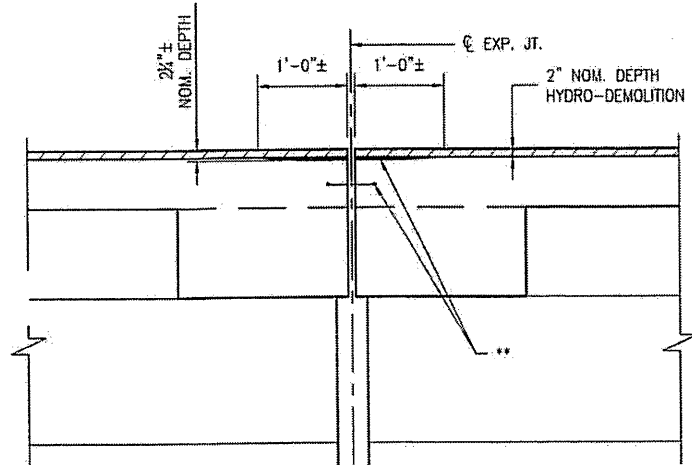
BRIDGE PLAN
 AND DETAILS

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36	
1			3			TOTAL SHEETS	
2			4			65	



TYPICAL SECTION SPANS A - E



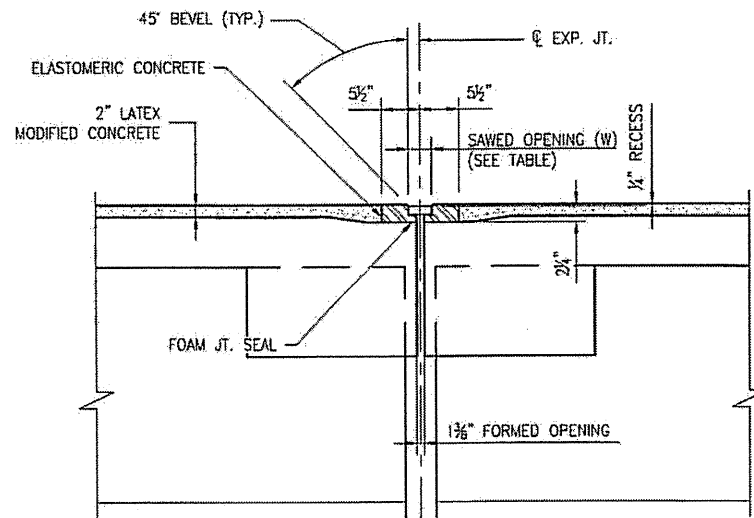
SECTION C-C

EST. MAX. EXISTING JOINT DEMOLITION

NOTES: RETAIN ALL EXIST. REINF. STEEL.
CLEAN AND REPAIR AS REQ'D.
ALL EXISTING JT. SEAL MATERIALS
ARE TO BE COMPLETELY REMOVED.

FROM BEST AVAILABLE INFORMATION.

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.

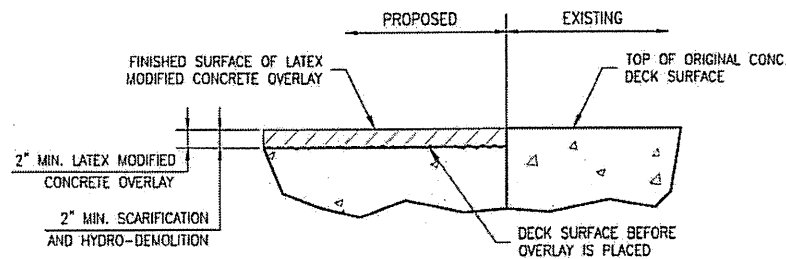


SECTION C-C

JOINT SEAL

NOTES: USE 3/8" WIDE UNCOMPRESSED
FOAM JOINT SEAL MATERIAL.

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP	45° F	60° F	90° F
BENT 3	2 5/8"	2 3/8"	1 15/16"



DETAIL FOR LATEX MODIFIED CONC. OVERLAY

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

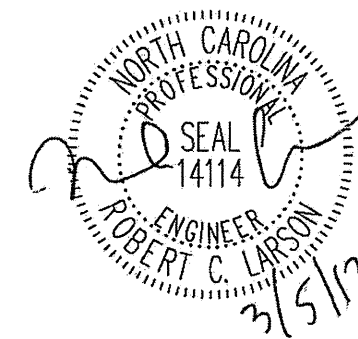
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480071

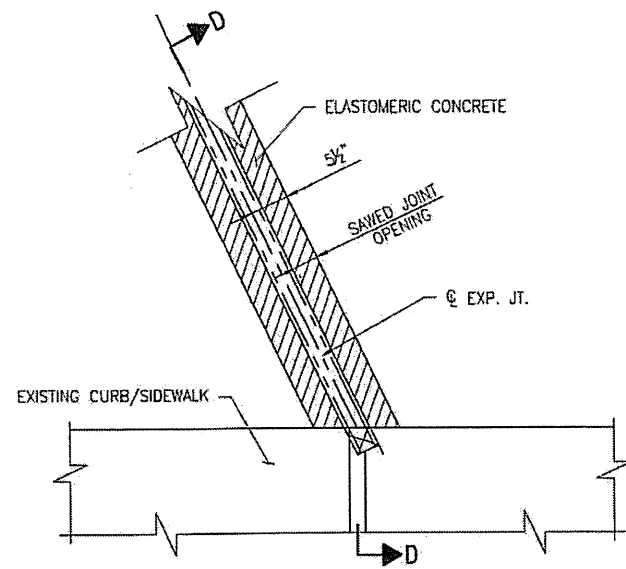
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
AND JOINT DETAILS

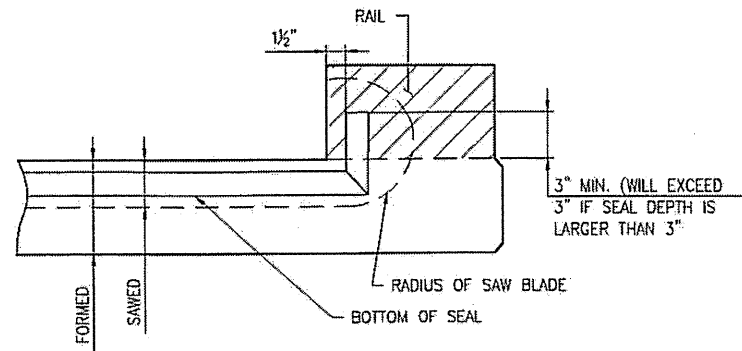


DRAWN BY: F.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.	
NO	BY:	DATE:	NO	BY:	DATE:	S-37	
1			3			TOTAL SHEETS	
2			4			65	

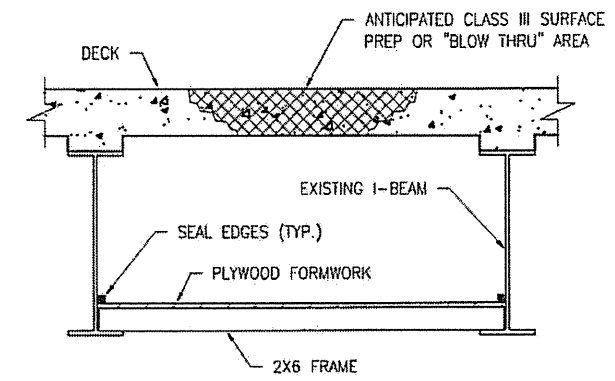


PARTIAL PLAN @ JOINT



SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF THE RAIL.



TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.
SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.
COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.

PLAN PREPARED BY:



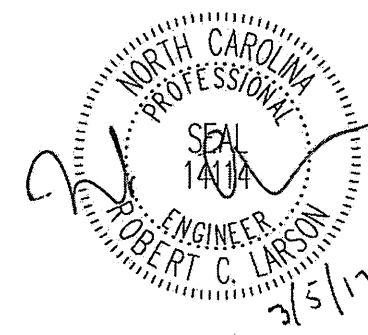
ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480071

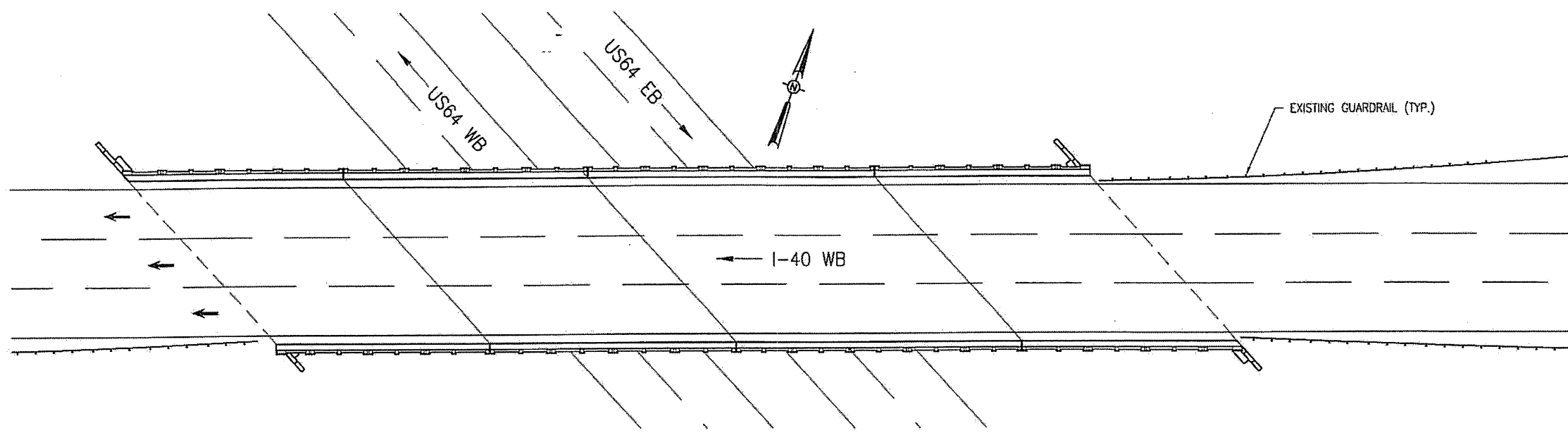
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
AND JOINT DETAILS



DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			65



BRIDGE 480109 ON WB I-40

LOCATION: BRIDGE 480109, I-40 OVER US64 0.1 MILES SOUTH OF JUNCTION WITH SR1006.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

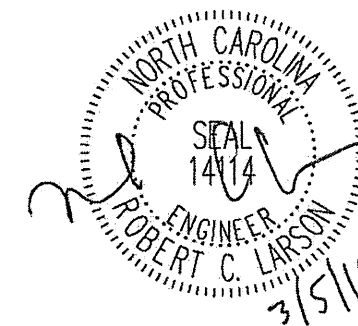
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A & O PROJECT #: 2011.031

TOTAL BILL OF MATERIAL							
SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONC. OVERLAY VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	FOAM JOINT SEALS	CONCRETE REPAIRS	INCIDENTAL MILLING
SQ. YD.	SQ. YD.	CU. YD.	SQ. YD.	SQ. FT.	LUMP SUM	CU. FT.	SQ. YD.
1,044	1,044	37	1,060	9,306	L.S.	16	16

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480109

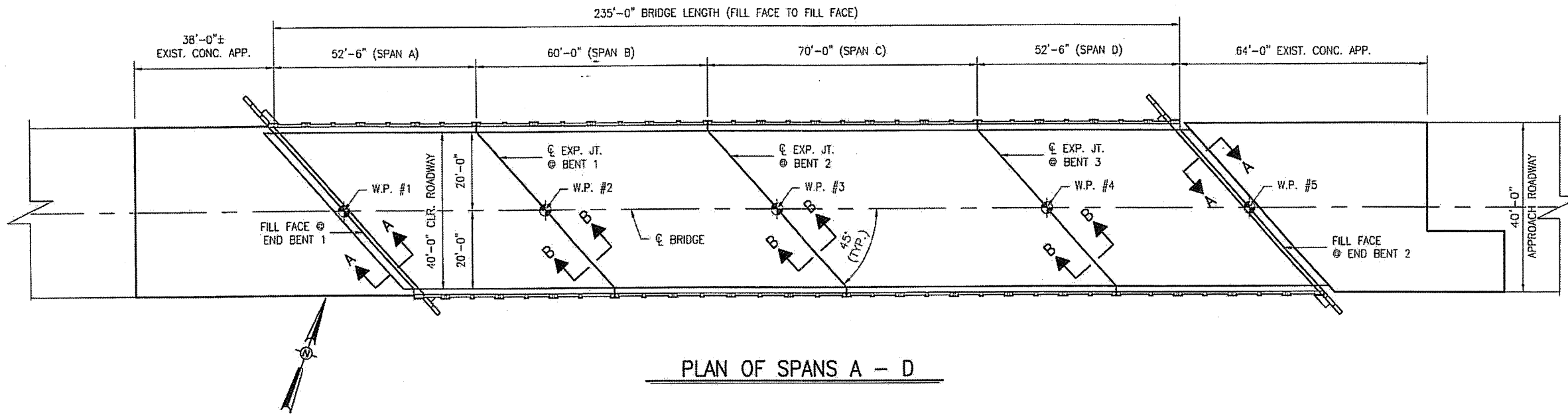
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

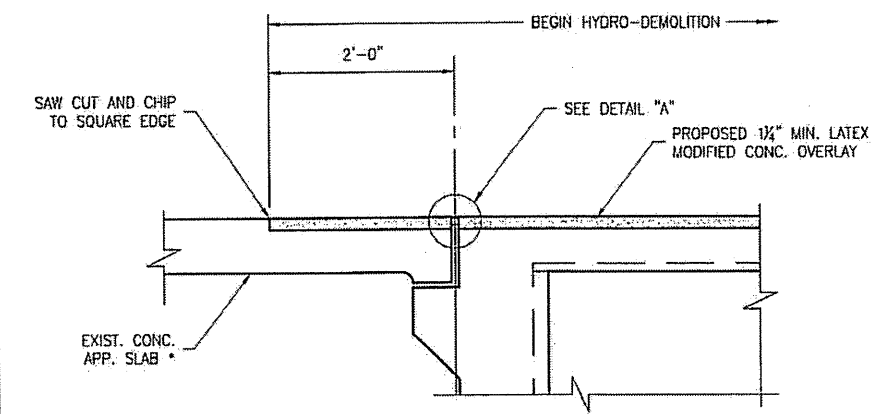


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			65

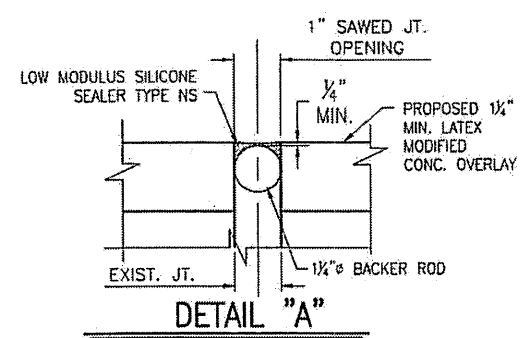


- NOTES:**
- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
 - FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
 - THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS. SEE DETAIL, THIS SHEET.
 - FOR VERY EARLY STRENGTH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
 - FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
 - FOR SECTION B-B, SEE SHEET S-41.
 - 1 1/2" BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT TO CONSTRUCT JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

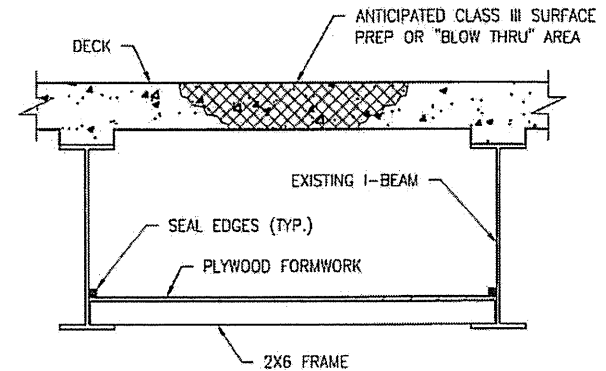


SECTION A-A

* PARTIALLY MILL EXIST. BRIDGE APPROACH SLAB AND OVERLAY W/1 1/2" OF LATEX MODIFIED CONCRETE.



DETAIL "A"

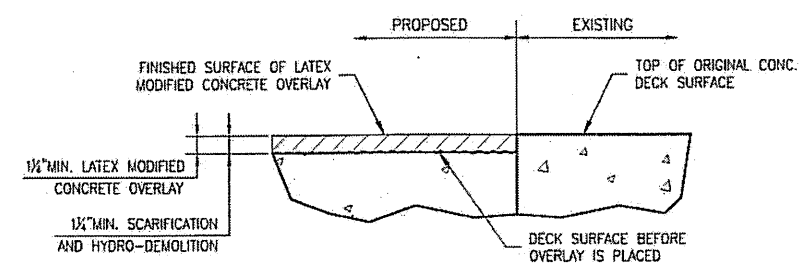


TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.



DETAIL FOR LATEX MODIFIED CONC. OVERLAY

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
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A&O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480109

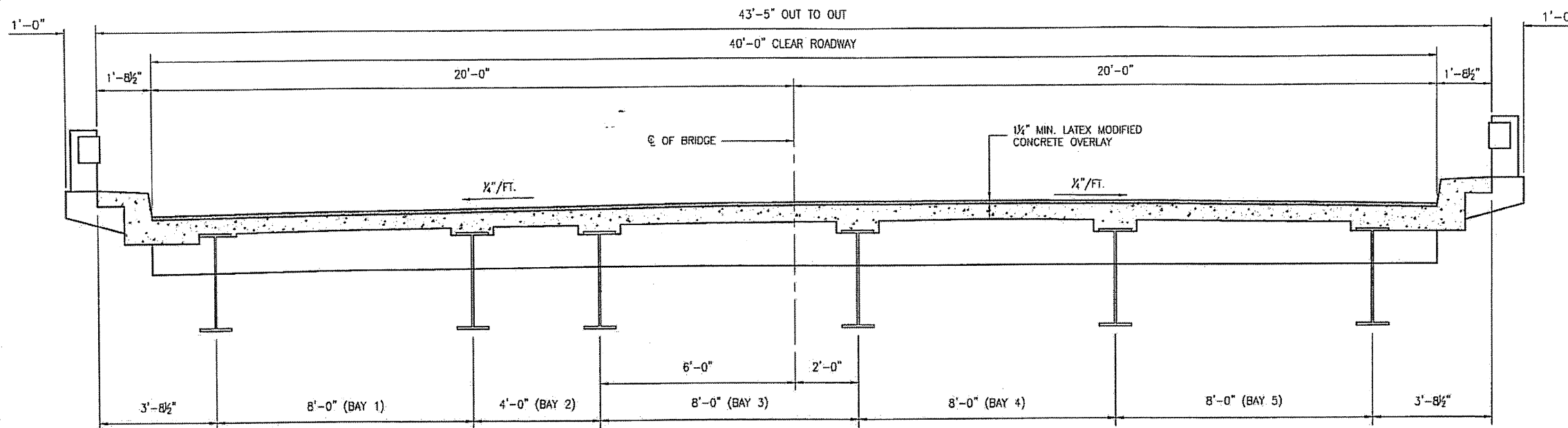
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN
AND DETAILS



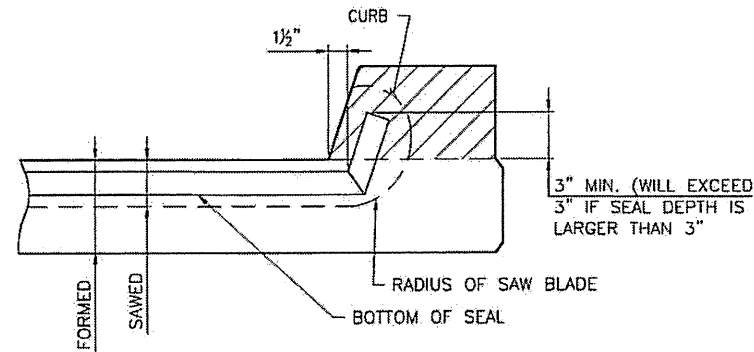
DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40	
1			3			TOTAL SHEETS	
2			4			65	



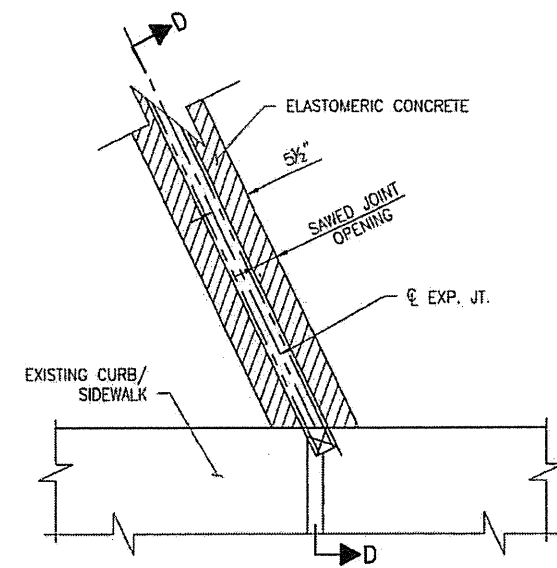
TYPICAL SECTION SPANS A - D
(BEAM SPACING VARIES IN SPAN C)

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP./LOC.	45° F	60° F	90° F
BENT 1	2"	1 7/8"	1 5/8"
BENT 2	1 5/8"	1 7/8"	1 1/2"
BENT 3	1 5/8"	1 7/8"	1 3/4"

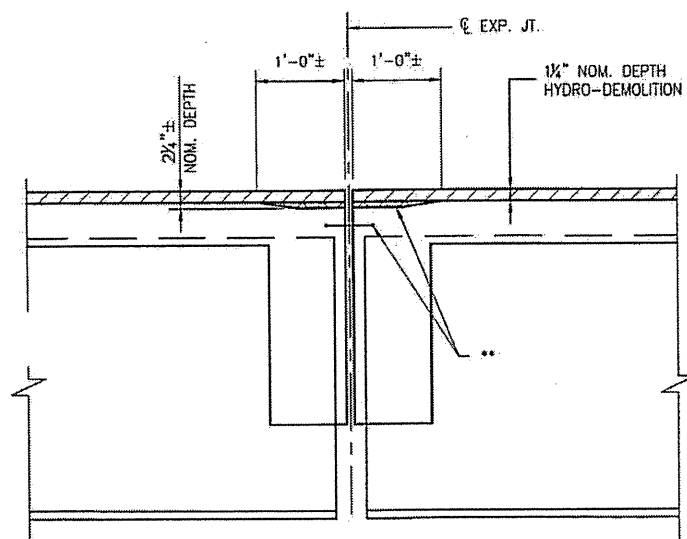


SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE CURB.

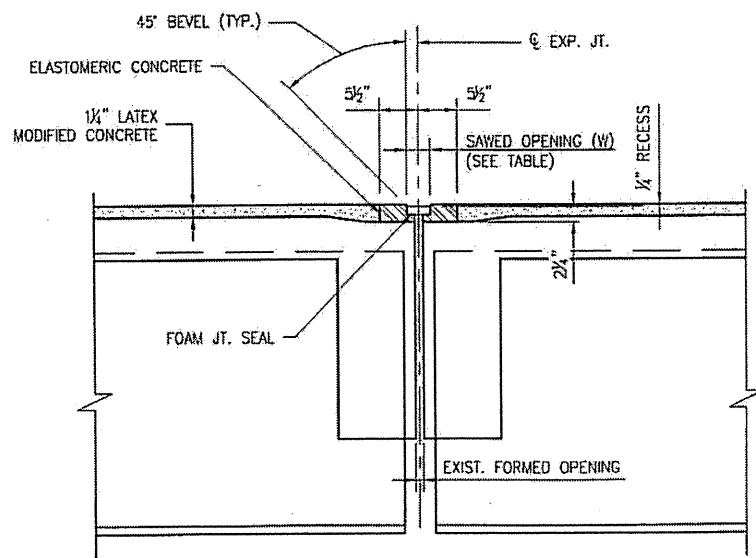


PARTIAL PLAN @ JOINT



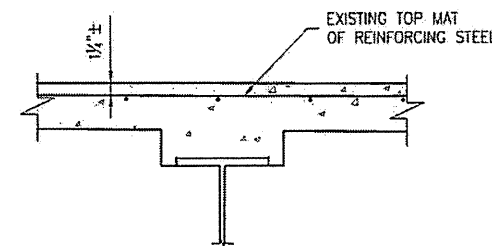
SECTION B-B

EST. MAX. EXISTING JOINT DEMOLITION
NOTES: RETAIN ALL EXIST. REINF. STEEL CLEAN AND REPAIR AS REQ'D. ALL EXISTING JT. SEAL MATERIALS ARE TO BE COMPLETELY REMOVED.



SECTION B-B

FOAM JOINT SEAL
NOTES: USE 2 1/2" WIDE UNCOMPRESSED FOAM JOINT SEAL MATERIAL.



EXISTING SLAB SECTION

PLAN PREPARED BY:



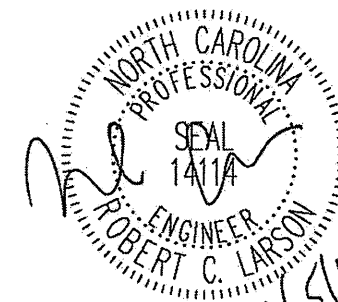
ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480109

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

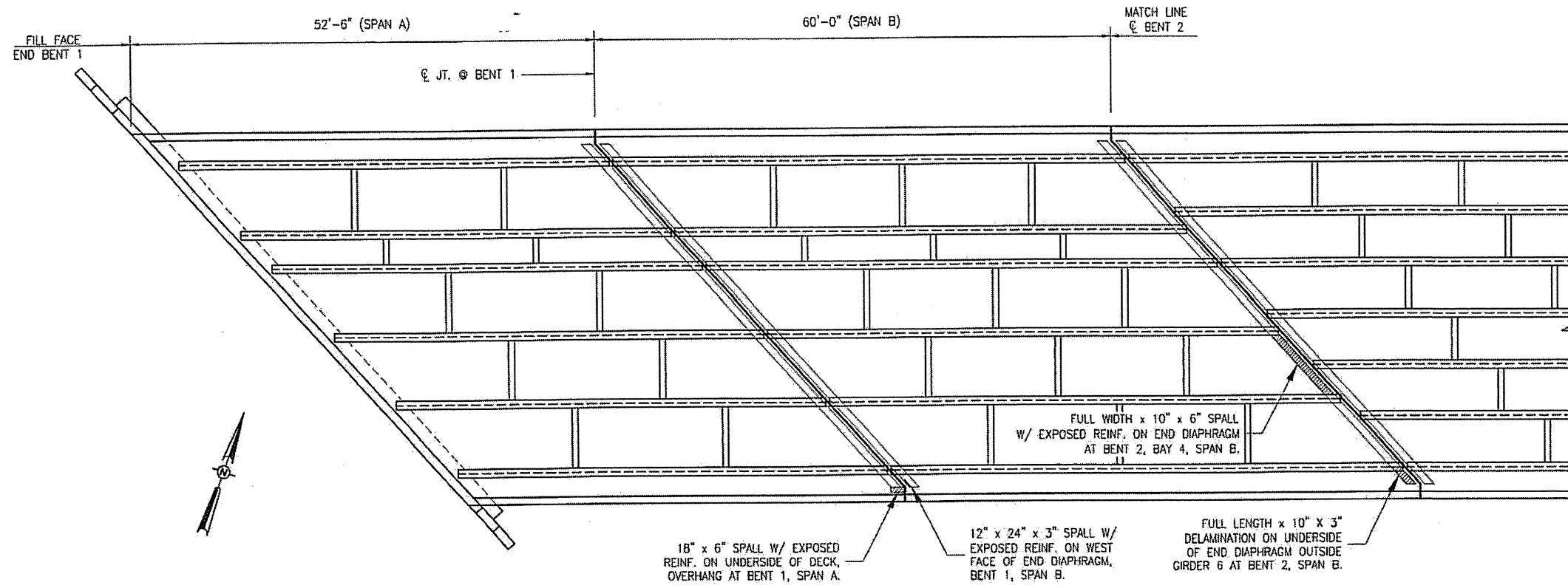
TYPICAL SECTION
AND JOINT DETAILS



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41	
1			3			TOTAL SHEETS	
2			4			65	

DRAWN BY: E.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.



DECK PLAN UNDERSIDE

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS
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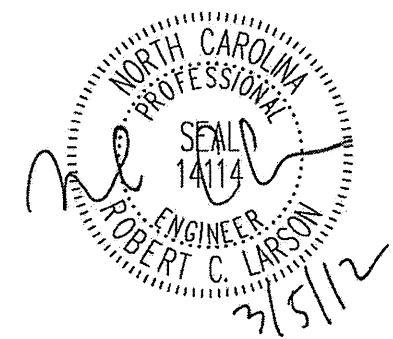
PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
 BRIDGE NO. 480109

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE PLAN
 UNDERSIDE
 SPANS A AND B

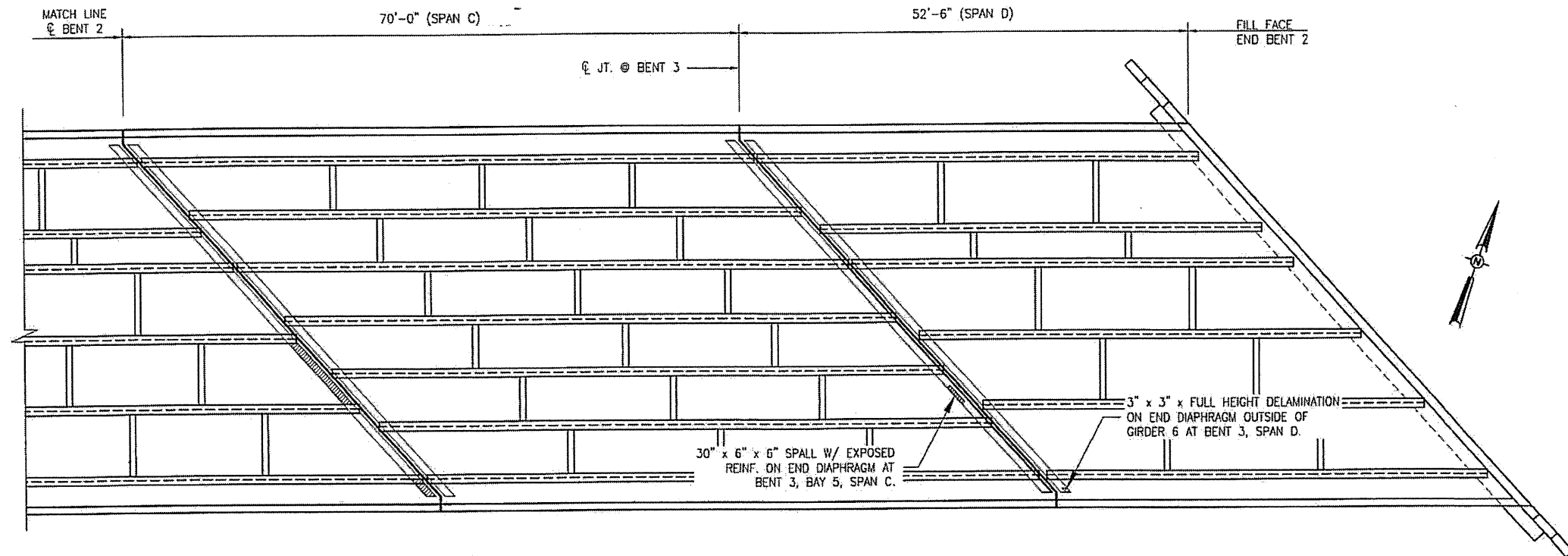
AREA TO BE REPAIRED WITH CONCRETE REPAIR MATERIAL. SEE DETAILS, SHEET S-44.
 SEE THE SPECIAL PROVISION "CONCRETE REPAIRS."

ESTIMATED CONCRETE REPAIRS
 SPANS A & B = 5 CF



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42	
1			3			TOTAL SHEETS	
2			4			65	

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11



DECK PLAN UNDERSIDE

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480109

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN
UNDERSIDE
SPANS C AND D

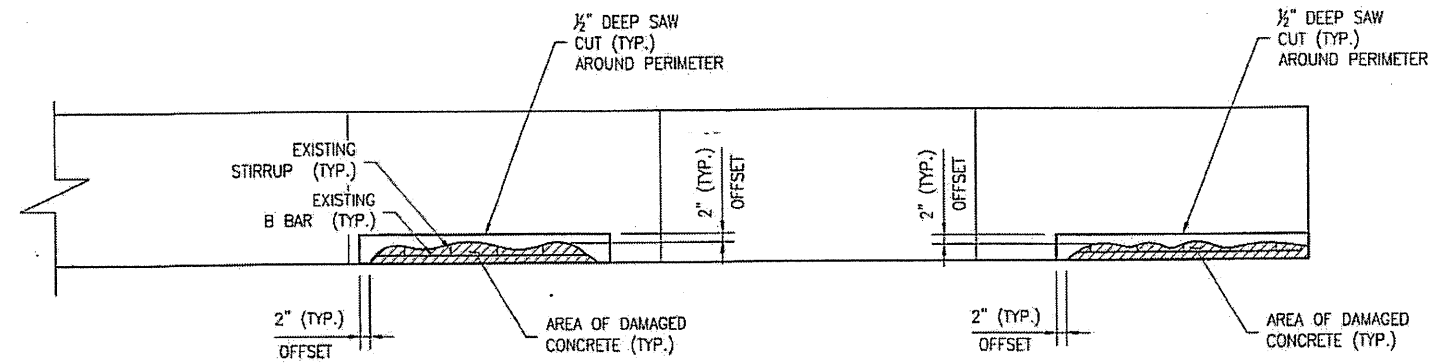
AREA TO BE REPAIRED WITH CONCRETE REPAIR MATERIAL. SEE DETAILS, SHEET S-44.
SEE THE SPECIAL PROVISION "CONCRETE REPAIRS."

ESTIMATED CONCRETE REPAIRS
SPANS C & D = 1 CF

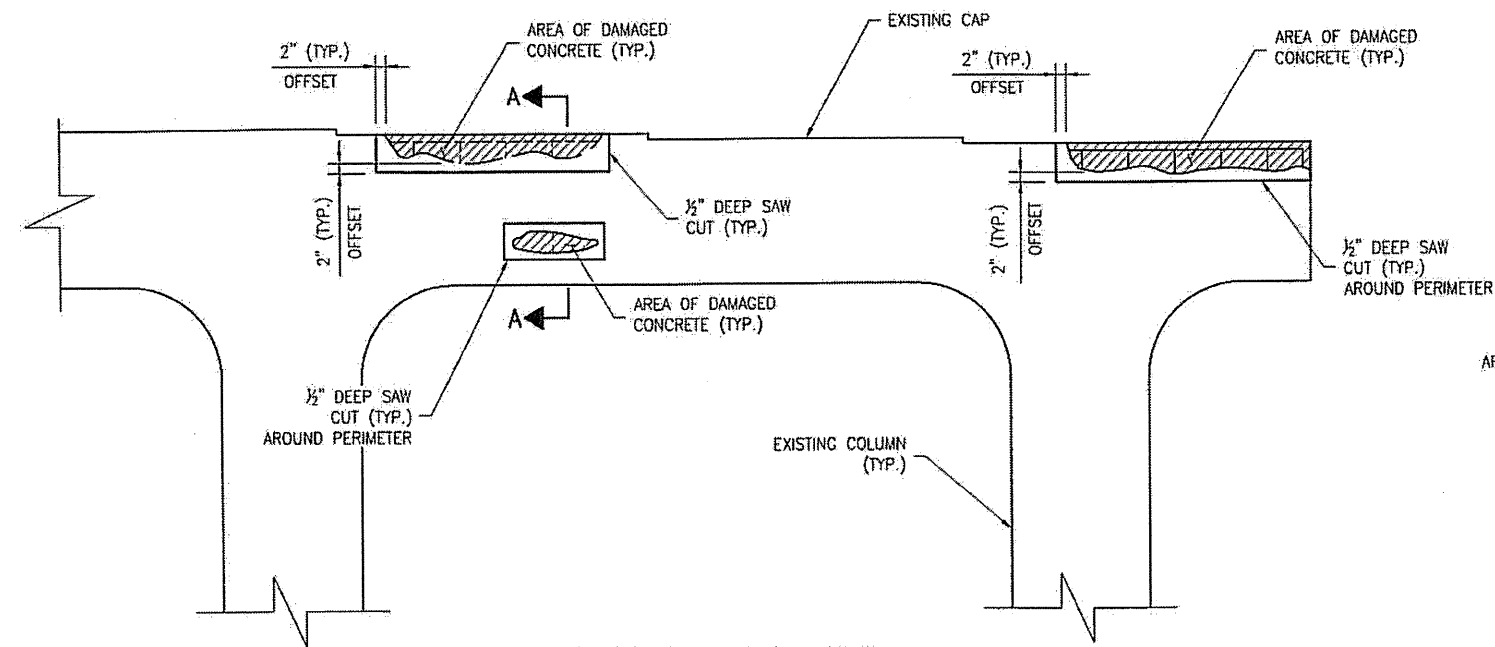


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

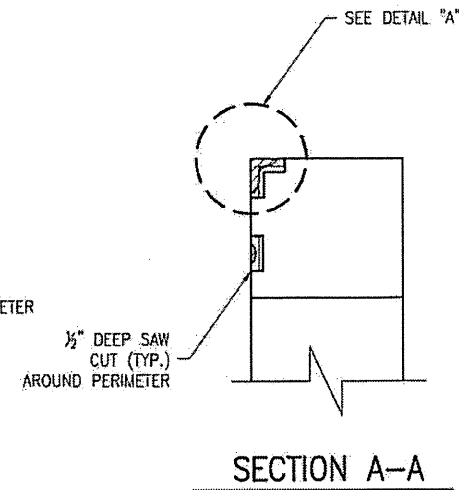
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			65



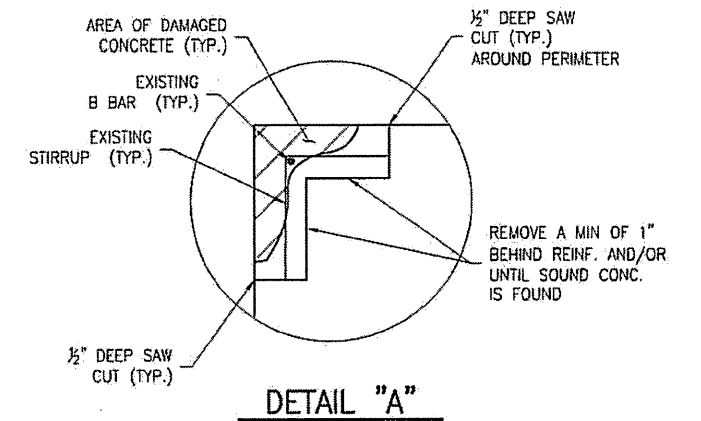
TYPICAL PARTIAL PLAN



TYPICAL PARTIAL ELEVATION



SECTION A-A



DETAIL "A"

NOTES:

1. SPALL/DELAMINATION DIMENSIONS SHOWN ARE APPROXIMATE.
2. REPAIR MATERIAL SHALL BE CONCRETE. SEE SPECIAL PROVISIONS.
3. REPAIRS OF SUPERSTRUCTURE UNDERSIDE, DIAPHRAGMS, ETC. SIMILAR.

PLAN PREPARED BY:



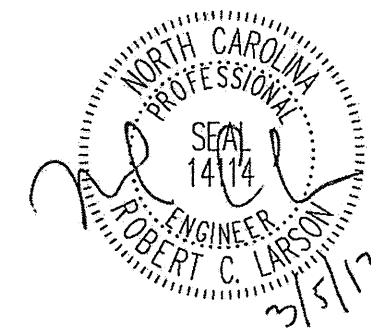
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CIVIL & STRUCTURAL ENGINEERS

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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480109

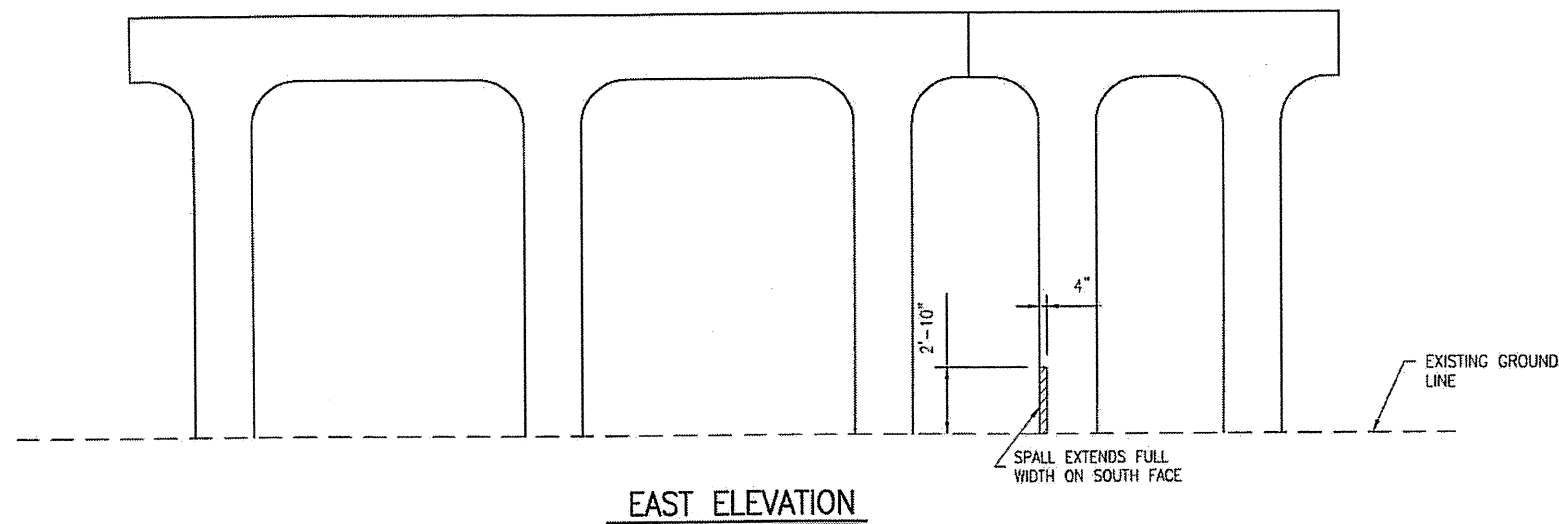
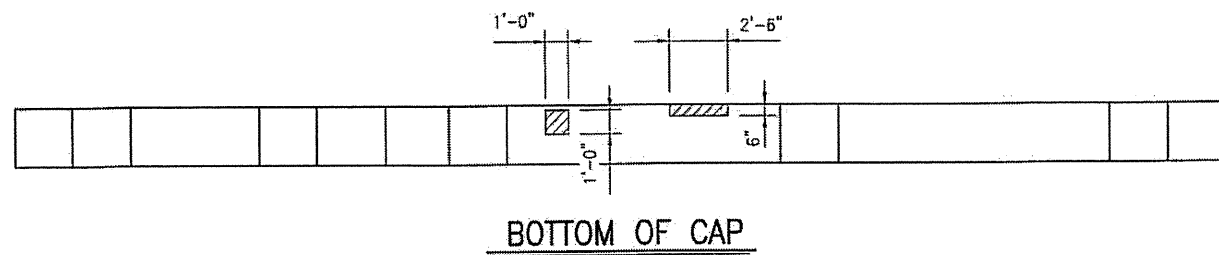
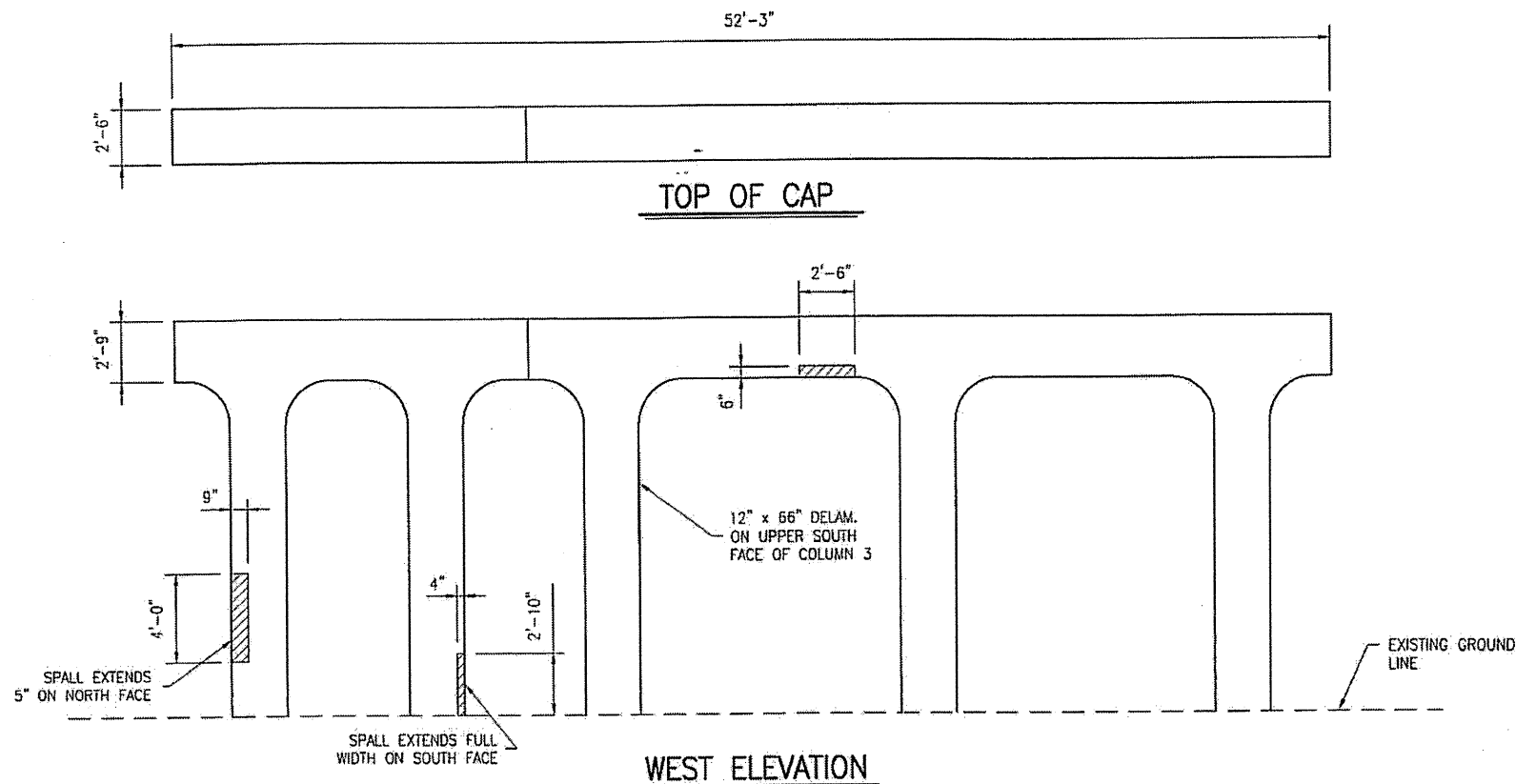
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL
BENT CAP
REPAIR DETAILS



DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			65



AREA TO BE REPAIRED WITH CONCRETE REPAIR MATERIAL. SEE DETAILS, SHEET 11F. SEE THE SPECIAL PROVISION "CONCRETE REPAIRS."

ESTIMATED CONCRETE REPAIRS
BENT 1 = 8 CF

PLAN PREPARED BY:



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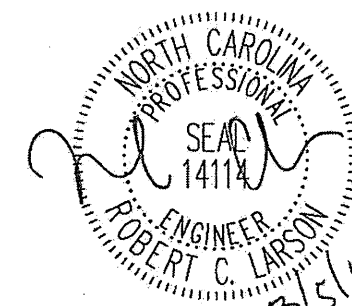
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480109

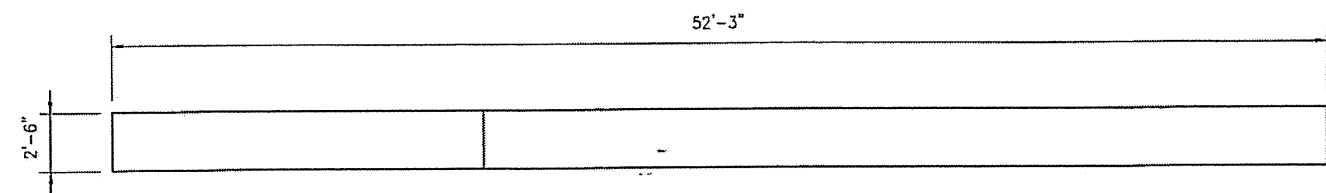
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 1



DRAWN BY: F.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

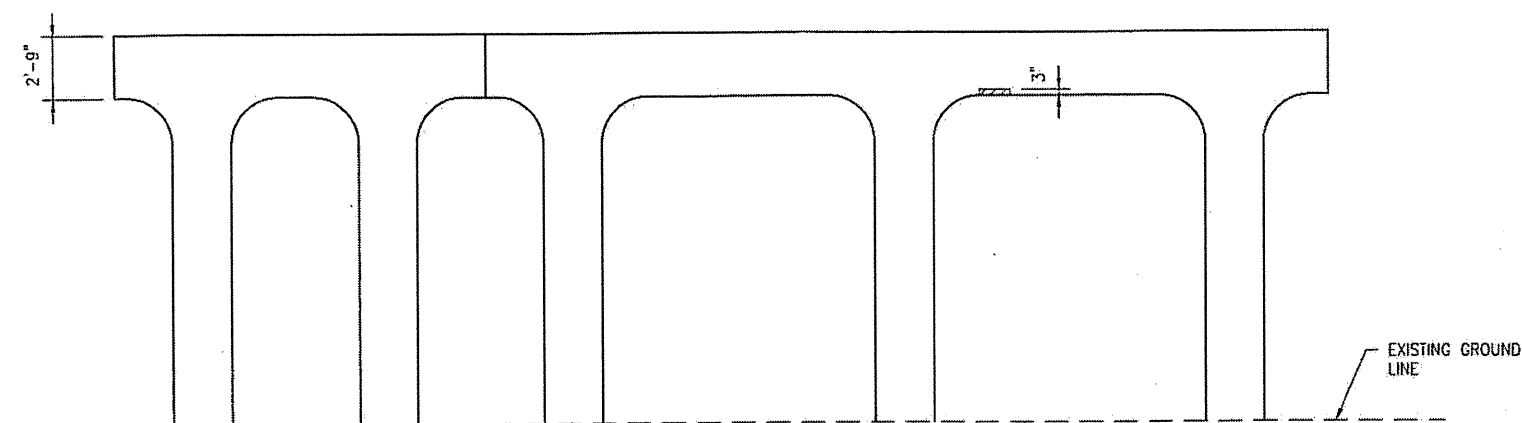
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			65



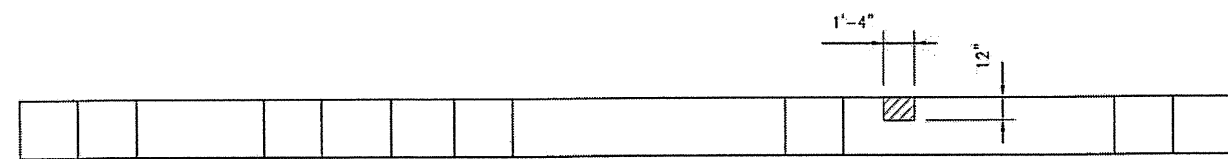
TOP OF CAP

AREA TO BE REPAIRED WITH CONCRETE REPAIR MATERIAL. SEE DETAILS, SHEET S-44. SEE THE SPECIAL PROVISION "CONCRETE REPAIRS."

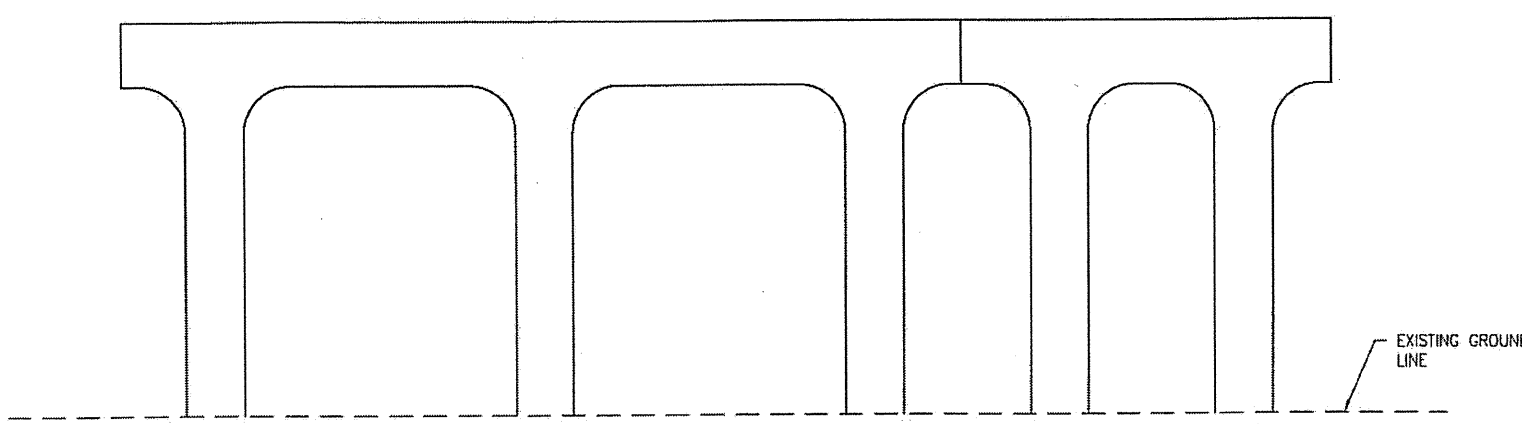
ESTIMATED CONCRETE REPAIRS
BENT 2 = 1 CF



WEST ELEVATION



BOTTOM OF CAP



EAST ELEVATION

PLAN PREPARED BY:



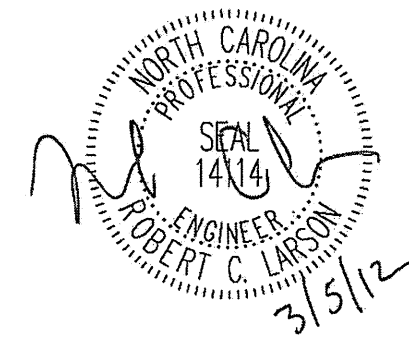
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CIVIL & STRUCTURAL ENGINEERS

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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480109

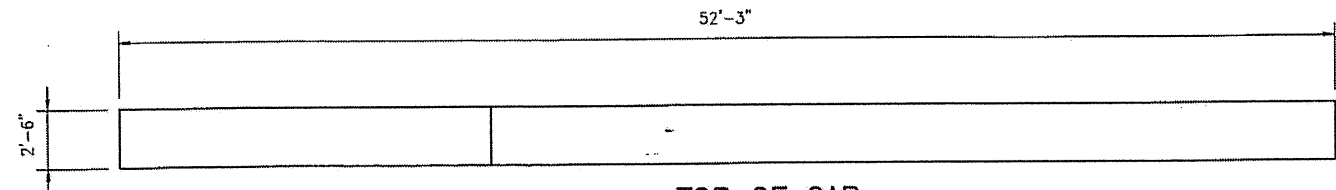
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 2

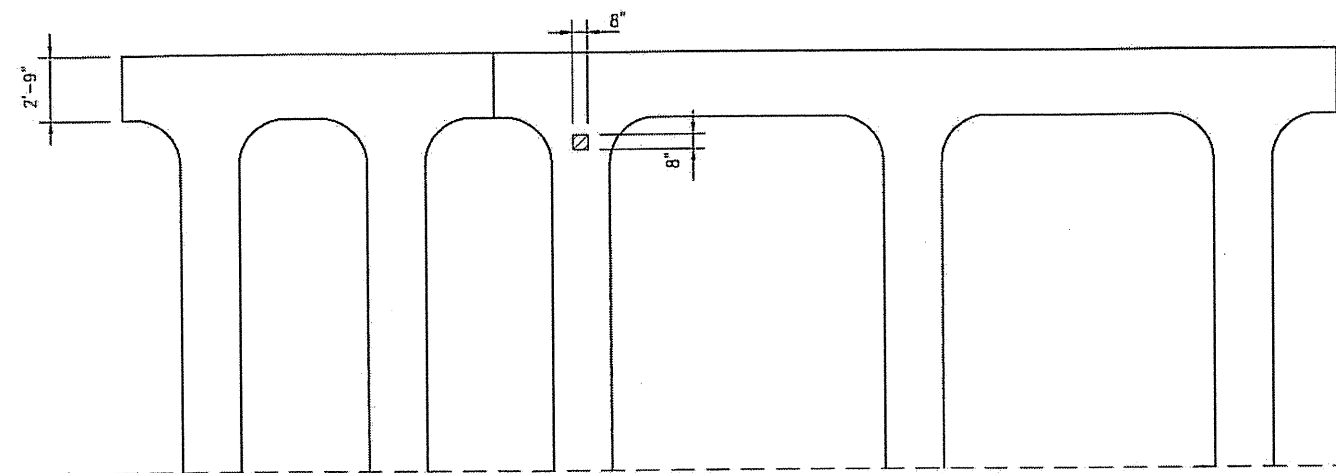


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

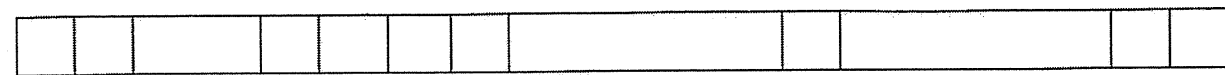
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
1			3			TOTAL SHEETS
2			4			65



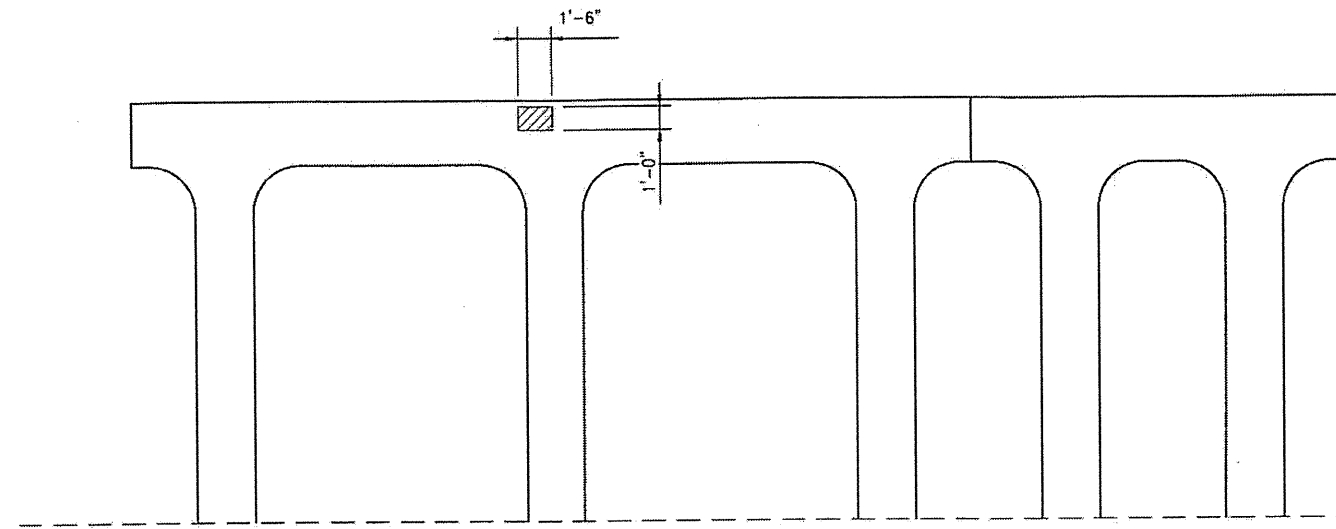
TOP OF CAP



WEST ELEVATION



BOTTOM OF CAP



EAST ELEVATION

AREA TO BE REPAIRED WITH CONCRETE REPAIR MATERIAL. SEE DETAILS, SHEET S-44. SEE THE SPECIAL PROVISION "CONCRETE REPAIRS."

ESTIMATED CONCRETE REPAIRS
BENT 3 = 1 CF

PLAN PREPARED BY:

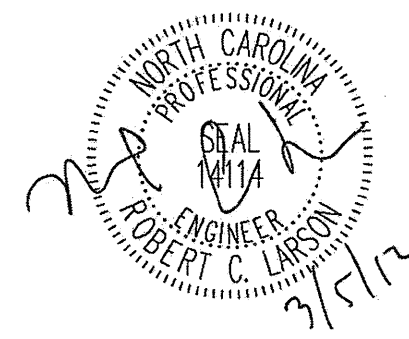


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CIVIL & STRUCTURAL ENGINEERS
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Phone 919 981 0310 Fax 919 981 0451
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480109

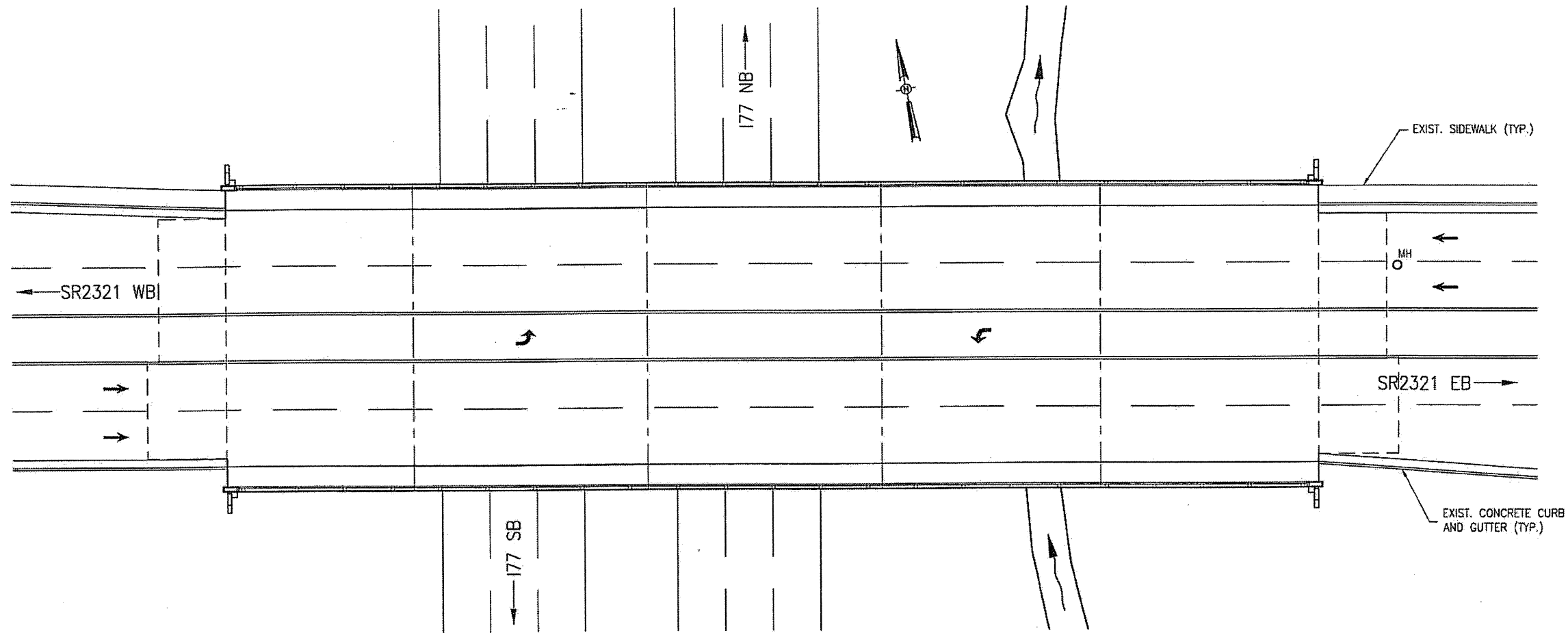
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP AND
COLUMN REPAIRS
BENT 3



DRAWN BY: F.E. ROBBINS DATE: 12-07-11
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-47
1			3			TOTAL SHEETS
2			4			65



BRIDGE 480154 ON SR2321

LOCATION: BRIDGE 480154, SR2321 OVER 177, 1.1 MILES NORTH OF JUNCTION WITH US 70.

PLAN PREPARED BY:



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TOTAL BILL OF MATERIAL								
SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY-VERY EARLY STRENGTH	PLACING AND FINISHING LATEX MODIFIED CONC. OVERLAY-VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	FOAM JOINT SEAL	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	SHOTCRETE REPAIRS	INCIDENTAL MILLING
SO. YD.	SO. YD.	CU. YD.	SO. YD.	SO. FT.	LUMP SUM	TON	CU. FT.	SO. YD.
2,199	2,199	122	2,199	18,630	L.S.	57	60	682

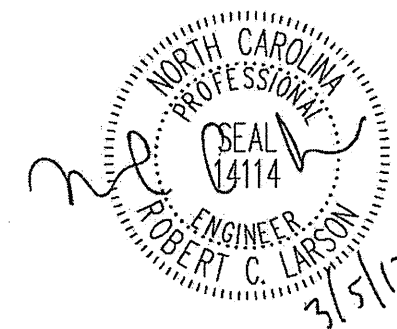
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480154

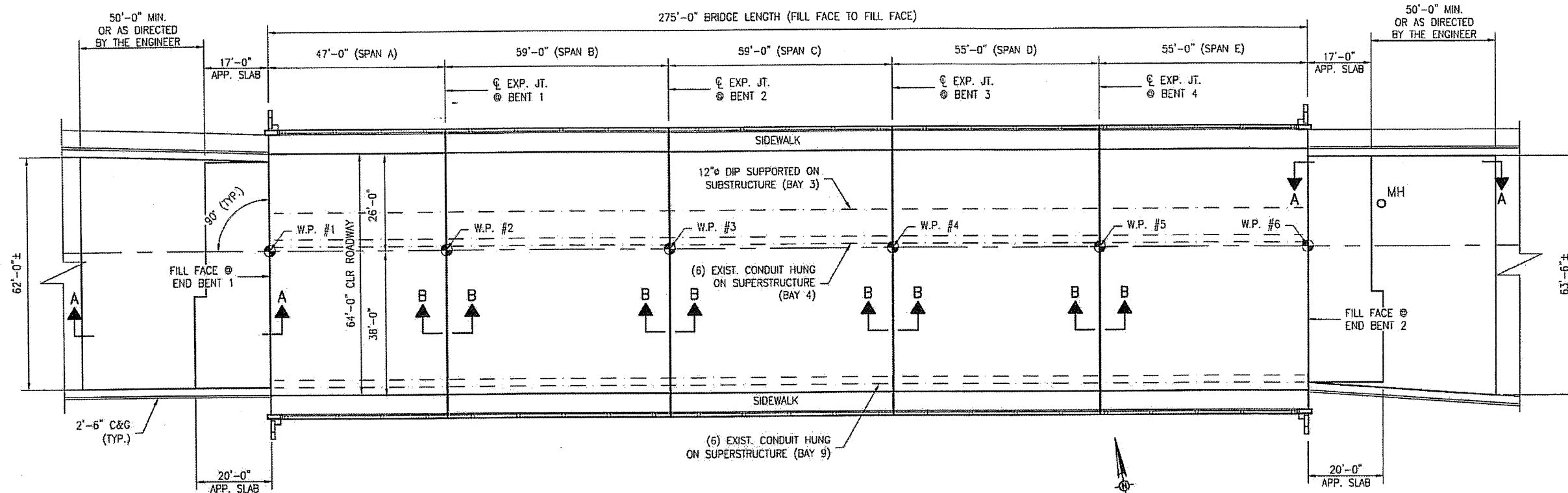
STATE OF NORTH CAROLINA
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LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

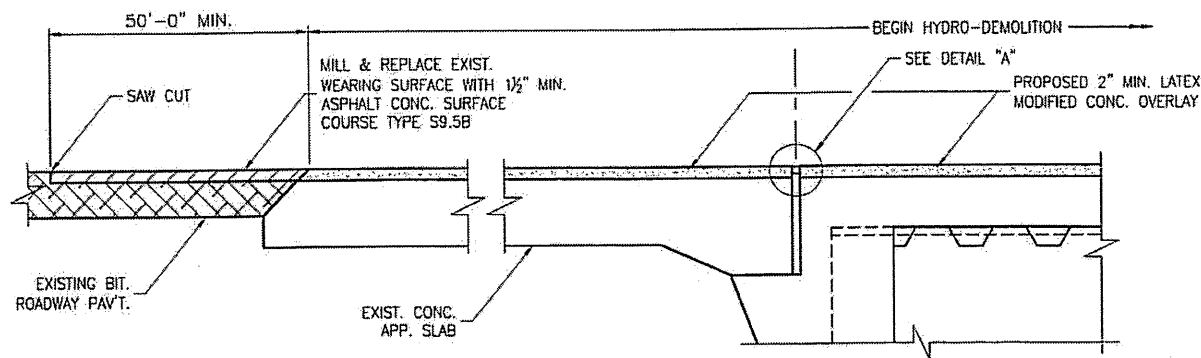


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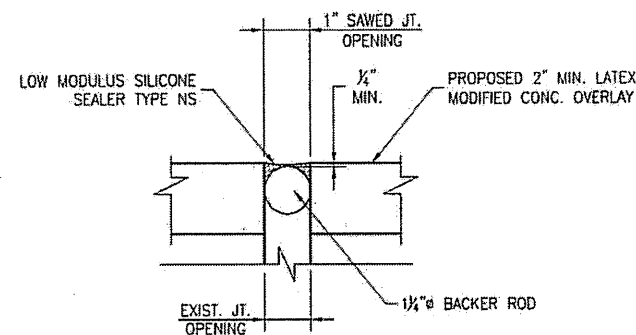
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
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2			4			65



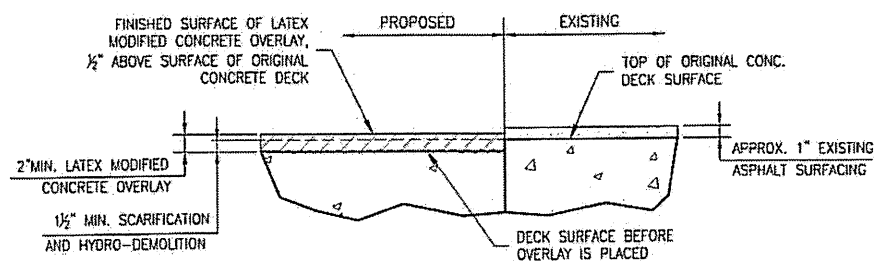
PLAN OF SPANS A - E



SECTION A-A



DETAIL "A"



DETAIL FOR LATEX MODIFIED CONC. OVERLAY

NOTE: EXISTING DEPTH OF CONC. COVER IS UNKNOWN. CONTRACTOR TO MAKE HIS OWN DETERMINATION.

NOTES:

- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
- FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THRU OF THE DECK. SEE DETAIL, SHEET S-51.
- FOR LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR SECTION B-B, SEE SHEET S-50.
- 1/4" BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT TO CONSTRUCT JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

PLAN PREPARED BY:



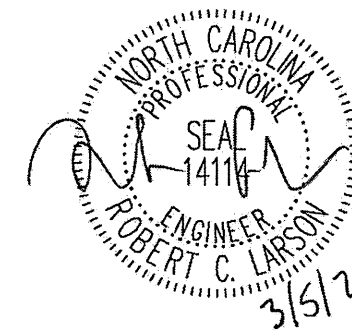
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BRIDGE NO. 480154

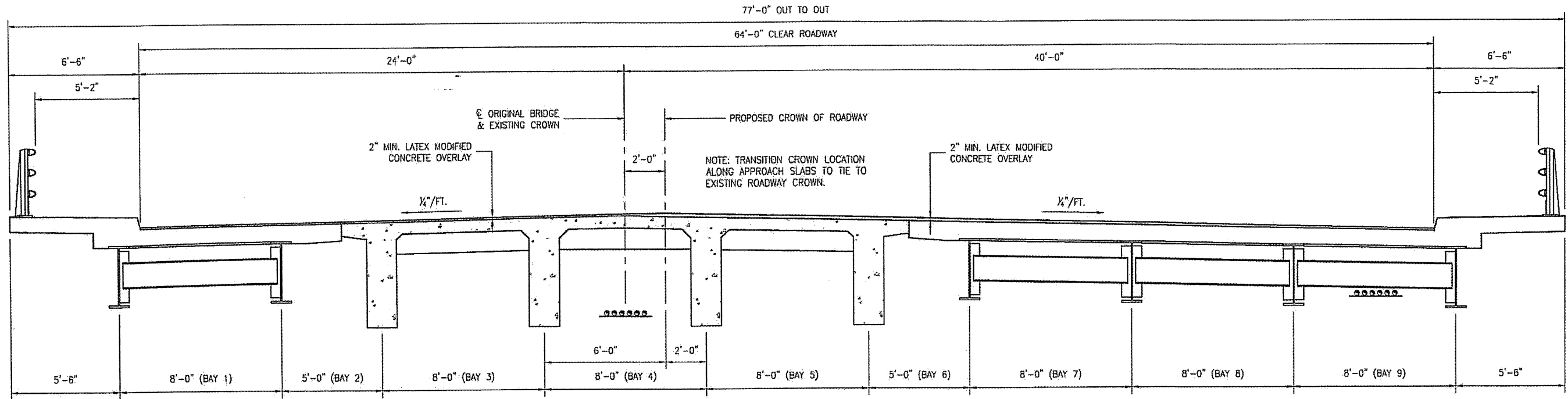
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RALEIGH

BRIDGE PLAN
AND DETAILS

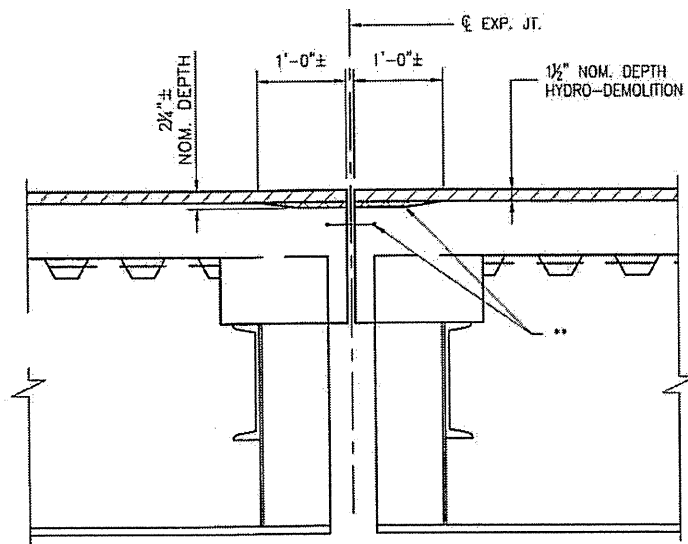


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			65



TYPICAL SECTION SPANS A - E

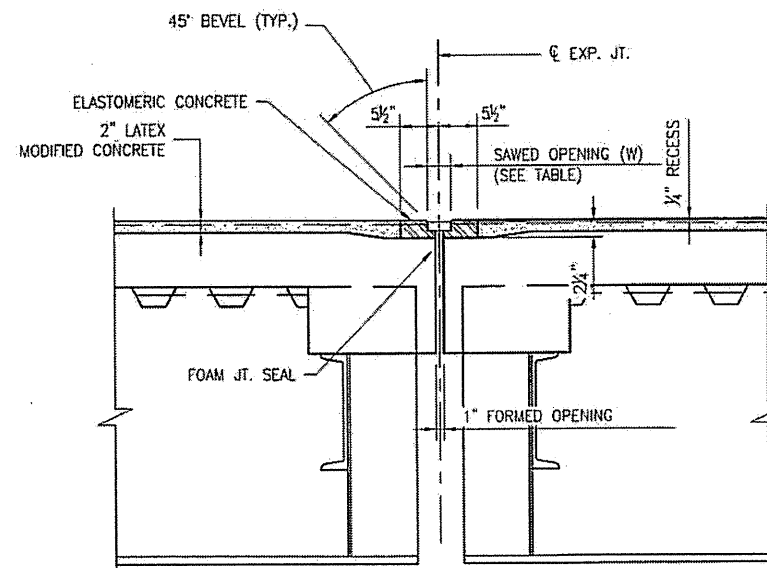


SECTION B-B

EST. MAX. EXISTING JOINT DEMOLITION

NOTES: RETAIN ALL EXIST. REINF. STEEL.
CLEAN AND REPAIR AS REQ'D.
ALL EXISTING JT. SEAL MATERIALS
ARE TO BE COMPLETELY REMOVED.

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.



SECTION B-B

FOAM JOINT SEAL

NOTES: USE 2 1/2" WIDE UNCOMPRESSED
FOAM JOINT SEAL MATERIAL.

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP.	45° F	60° F	90° F
BENT 1	2 1/8"	1 7/8"	1 5/8"
BENT 2	1 5/8"	1 3/8"	1 1/8"
BENT 3	1 5/8"	1 3/8"	1 1/8"
BENT 4	1 5/8"	1 3/8"	1 1/8"

PLAN PREPARED BY:

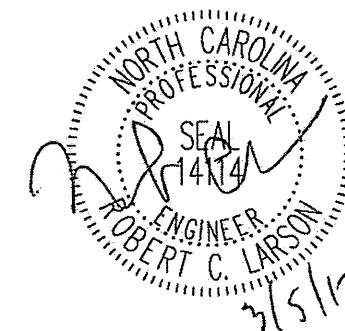


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BRIDGE NO. 480154

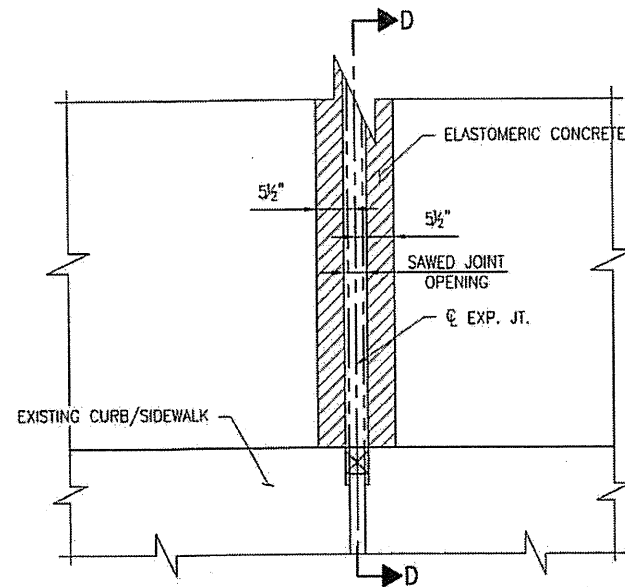
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TYPICAL
SECTION
AND DETAILS

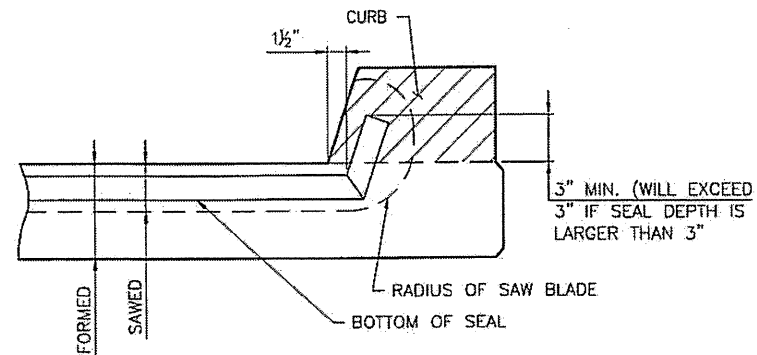


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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-50
1			3			TOTAL SHEETS
2			4			65

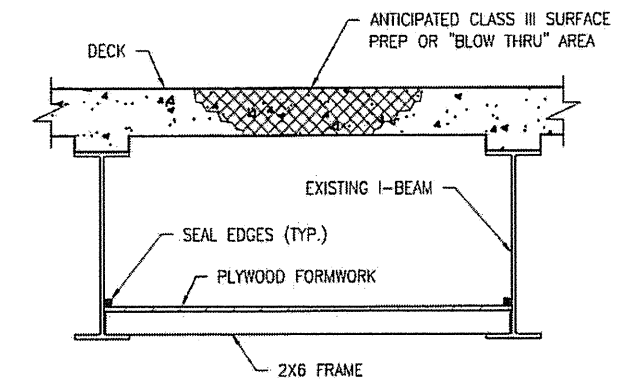


PARTIAL PLAN @ JOINT



SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF THE CURB.



TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.

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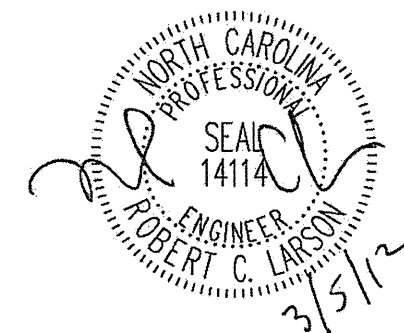
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IREDELL COUNTY

BRIDGE NO. 480154

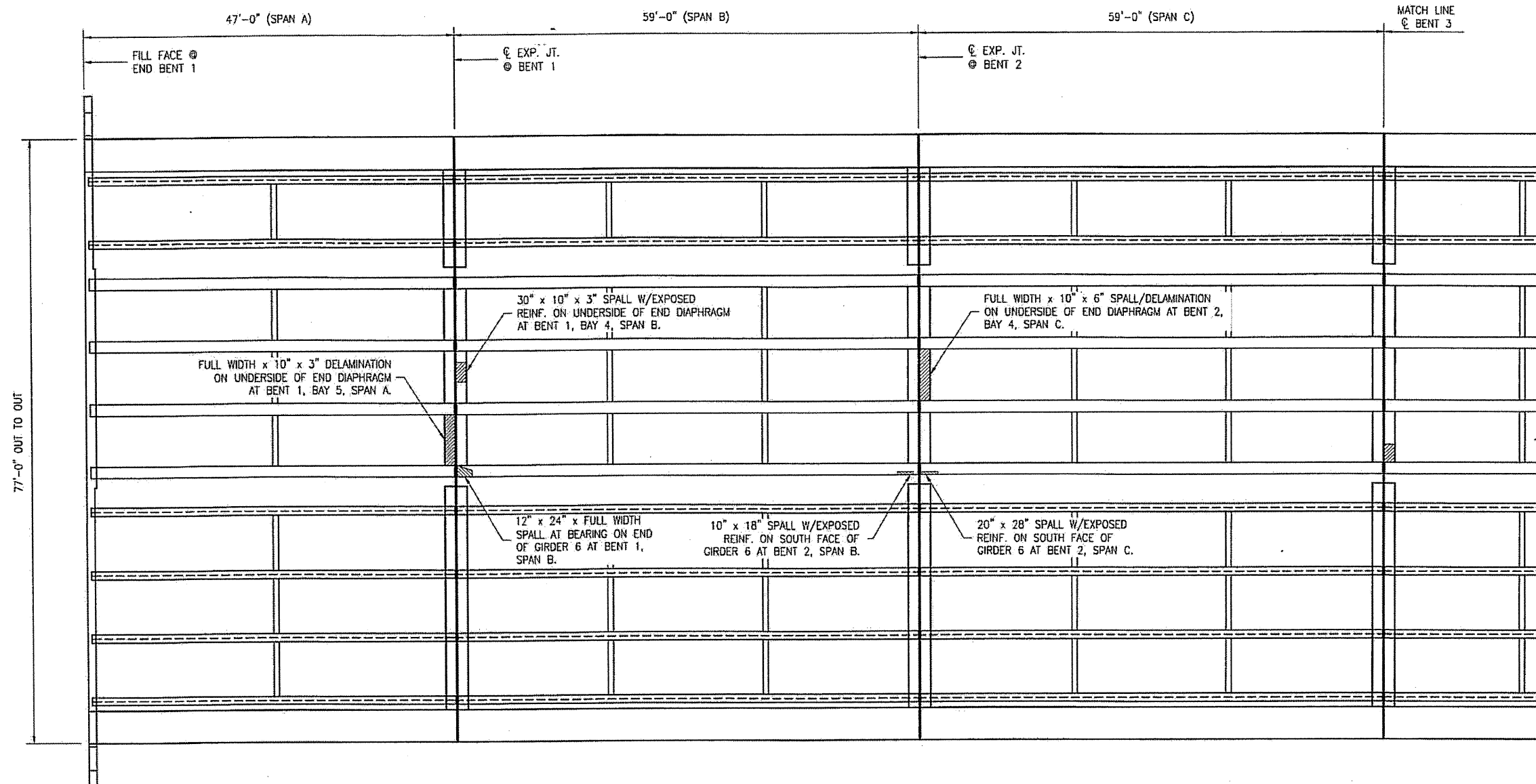
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RALEIGH

EXPANSION JOINT
DETAILS



DRAWN BY: F.F. ROBBINS DATE: 12-07-11
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-51
1			3			TOTAL SHEETS
2			4			65

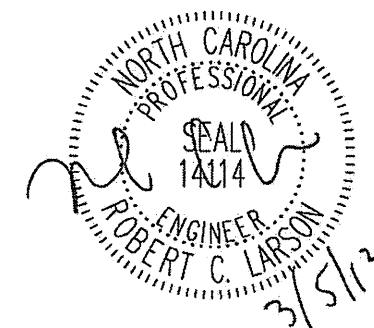


77'-0" OUT TO OUT

DECK PLAN UNDERSIDE

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-54. SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
SPANS A-C = 11 CF



PLAN PREPARED BY:



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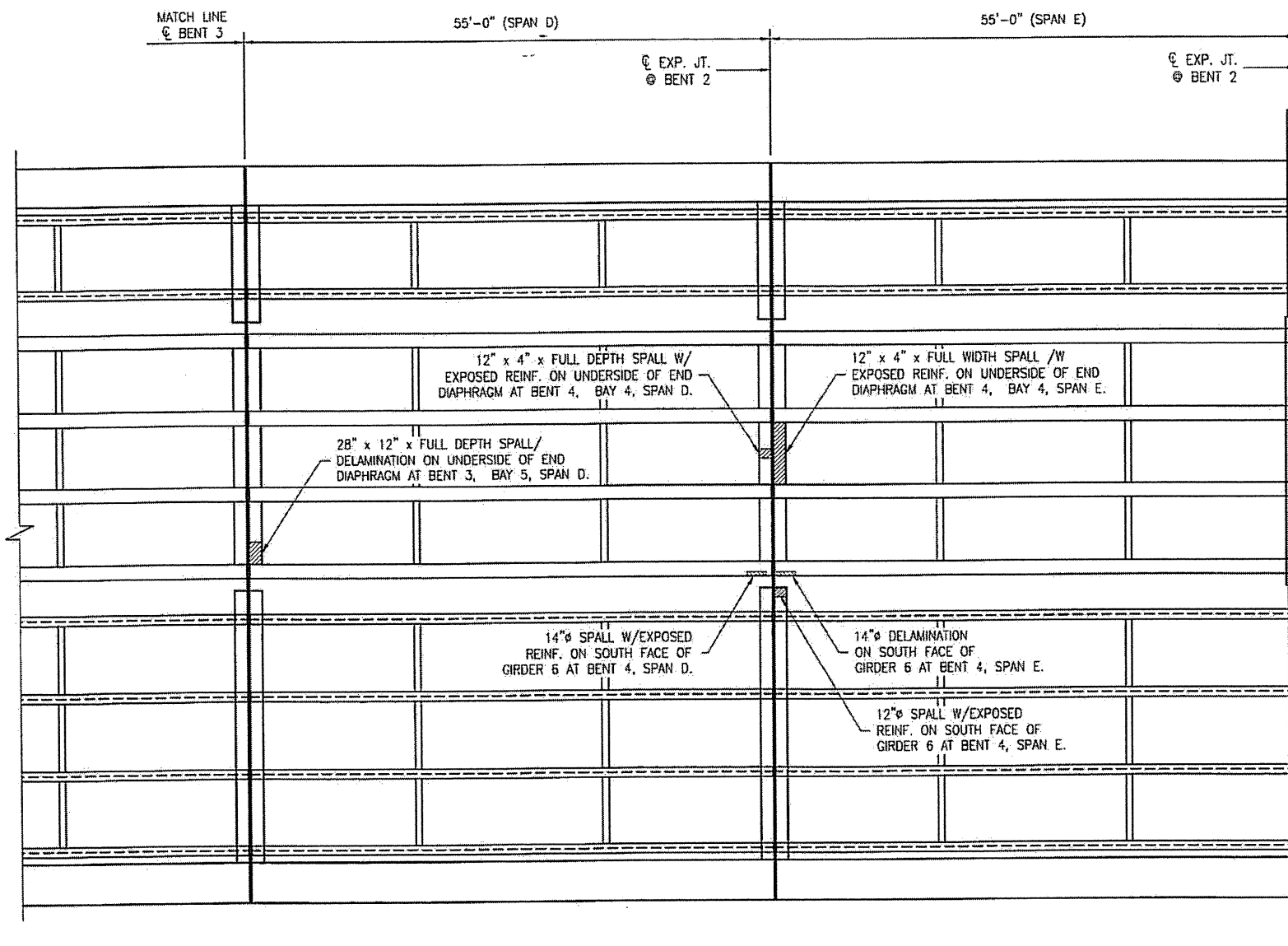
PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480154

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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BRIDGE PLAN
UNDERSIDE
SPANS A - C

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			65



DECK PLAN UNDERSIDE

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-54. SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
SPANS D-E = 6 CF

PLAN PREPARED BY:



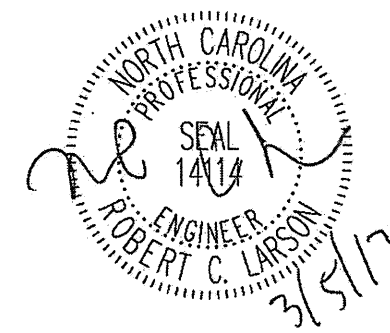
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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480154

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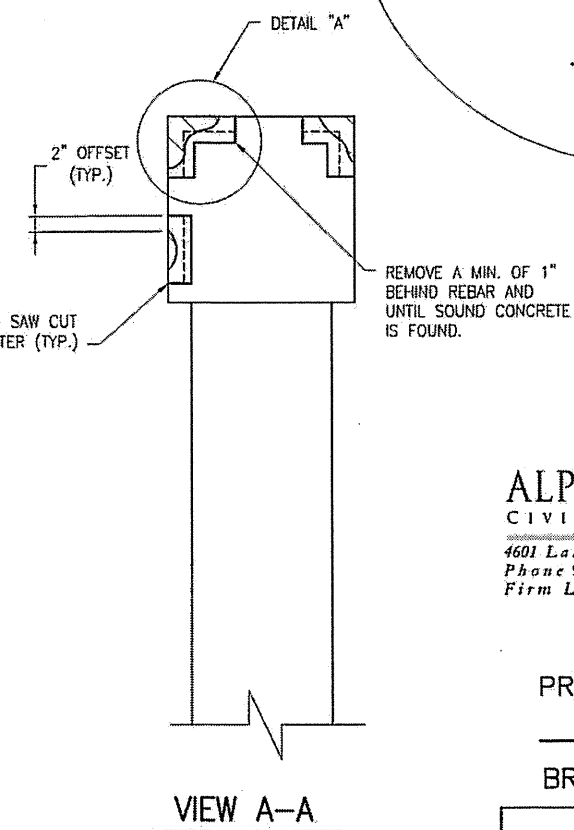
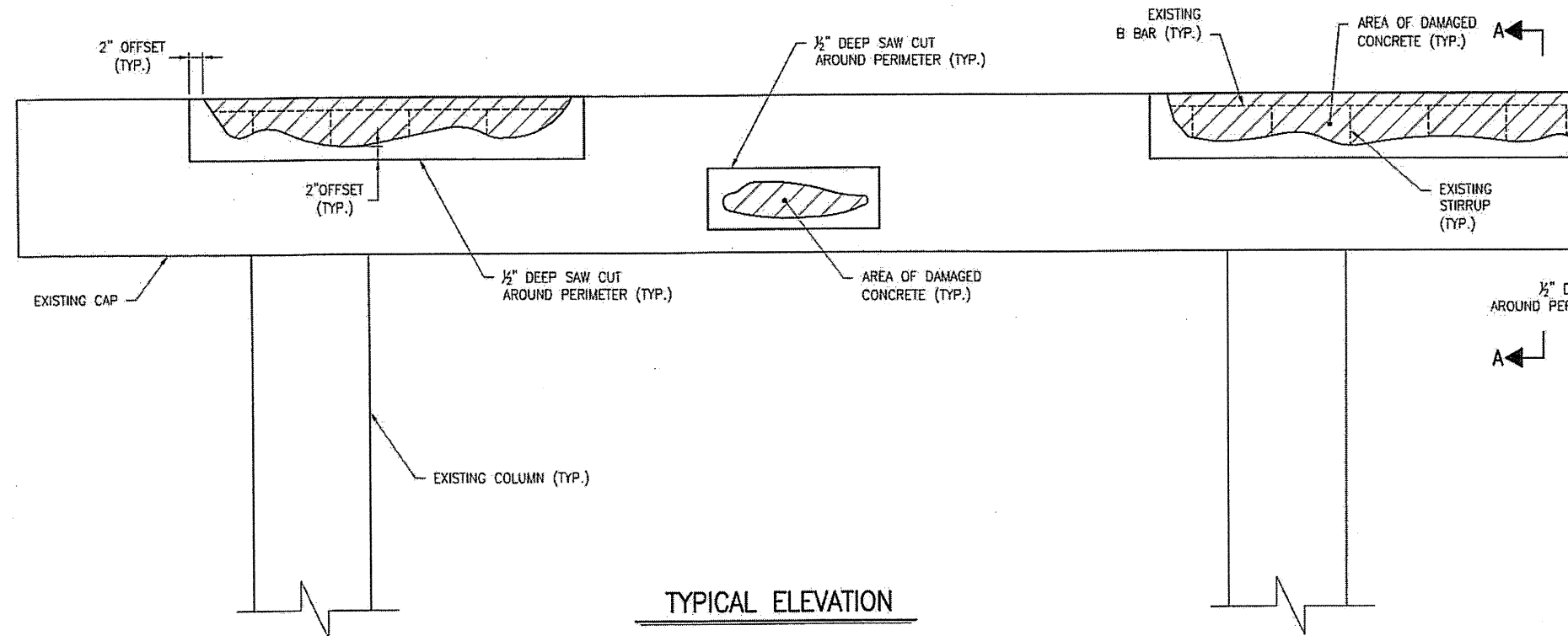
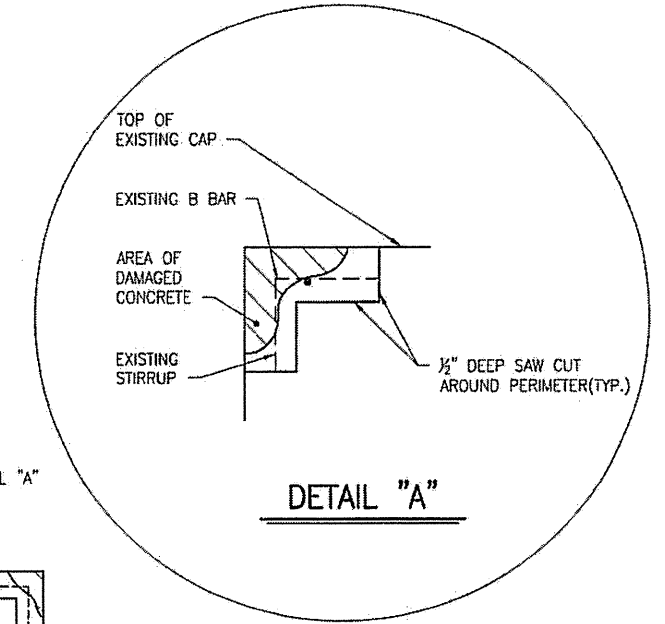
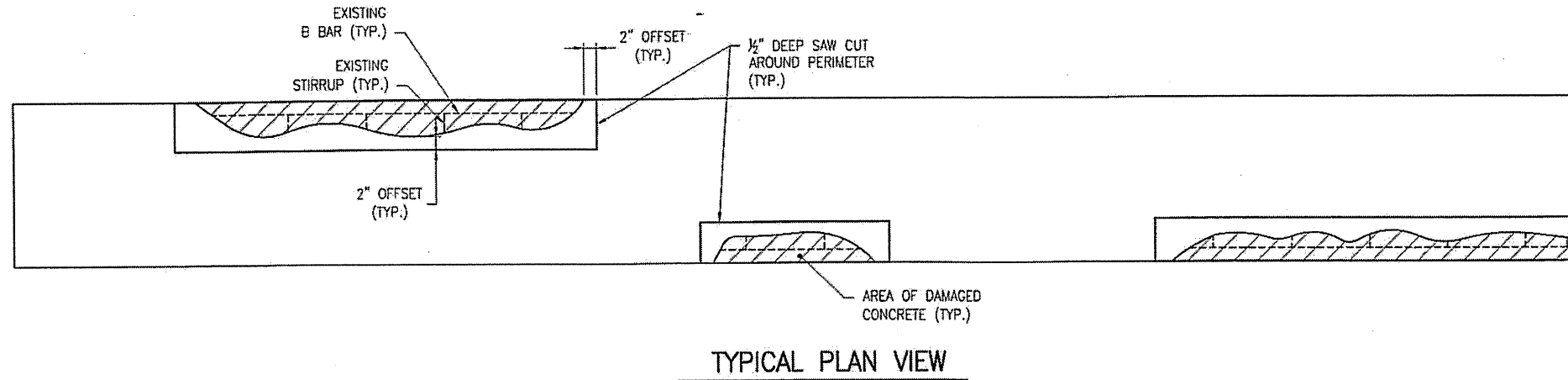
BRIDGE PLAN
UNDERSIDE
SPANS D AND E



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1			3			TOTAL SHEETS
2			4			65

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

- NOTES:
1. SPALL/DELMINATION DIMENSIONS SHOWN ARE APPROXIMATE.
 2. REPAIR MATERIAL SHALL BE SHOTCRETE. SEE SPECIAL PROVISIONS.
 3. AT THE CONTRACTOR'S OPTION, USE CONCRETE REPAIR WHERE SHOTCRETE IS DIFFICULT OR IMPRACTICAL. IN ANY EVENT, REPAIRS WILL BE PAID FOR AT THE UNIT PRICE BID FOR SHOTCRETE REPAIR.
 4. REPAIRS OF SUPERSTRUCTURE UNDERSIDE, DIAPHRAGMS, ETC. SIMILAR.



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IREDELL COUNTY
 BRIDGE NO. 480154

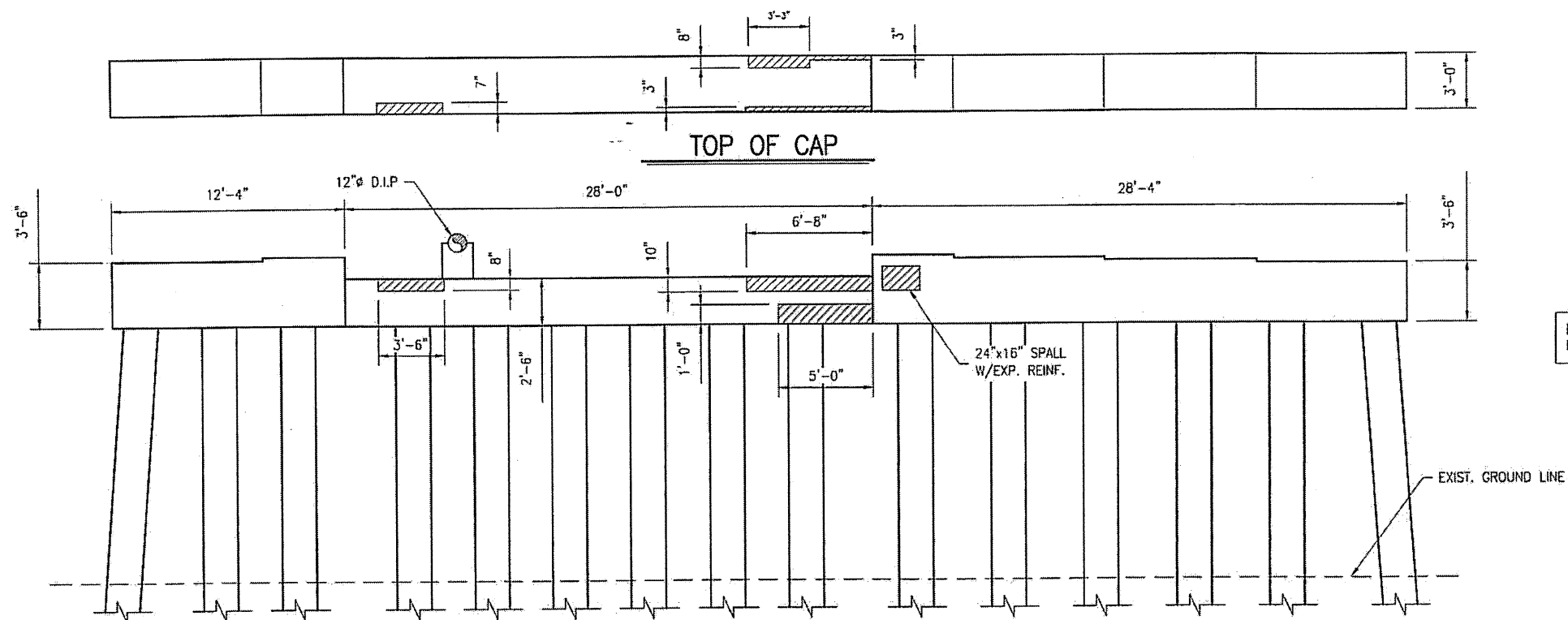
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 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL BENT CAP
 REPAIR DETAILS

NORTH CAROLINA
 PROFESSIONAL
 SEAL
 1411
 ENGINEER
 ROBERT C. LARSON
 3/5/12

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

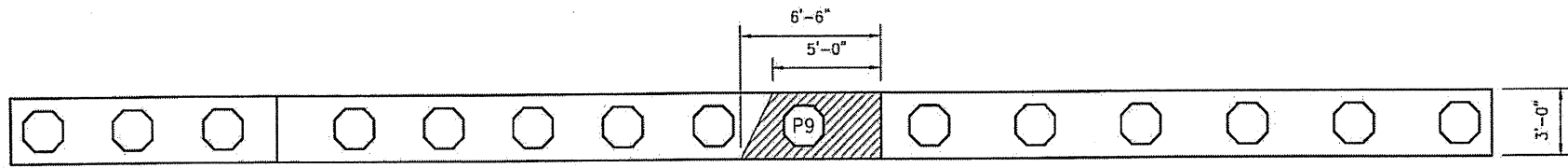
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			65



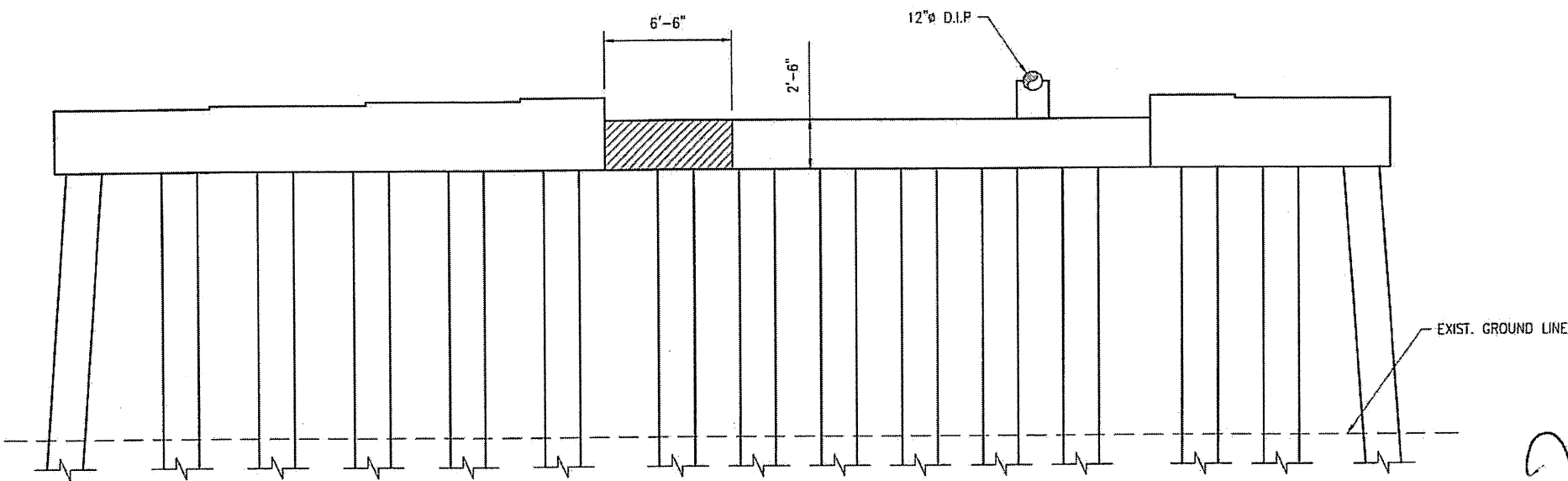
AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-54. SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 1 = 21 CF

WEST ELEVATION



BOTTOM OF CAP



EAST ELEVATION

PLAN PREPARED BY:



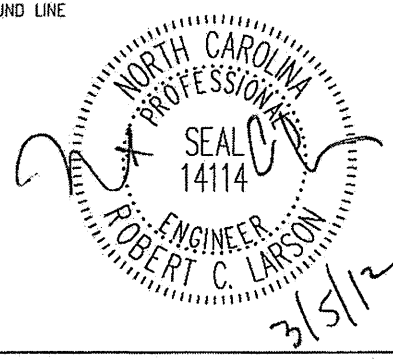
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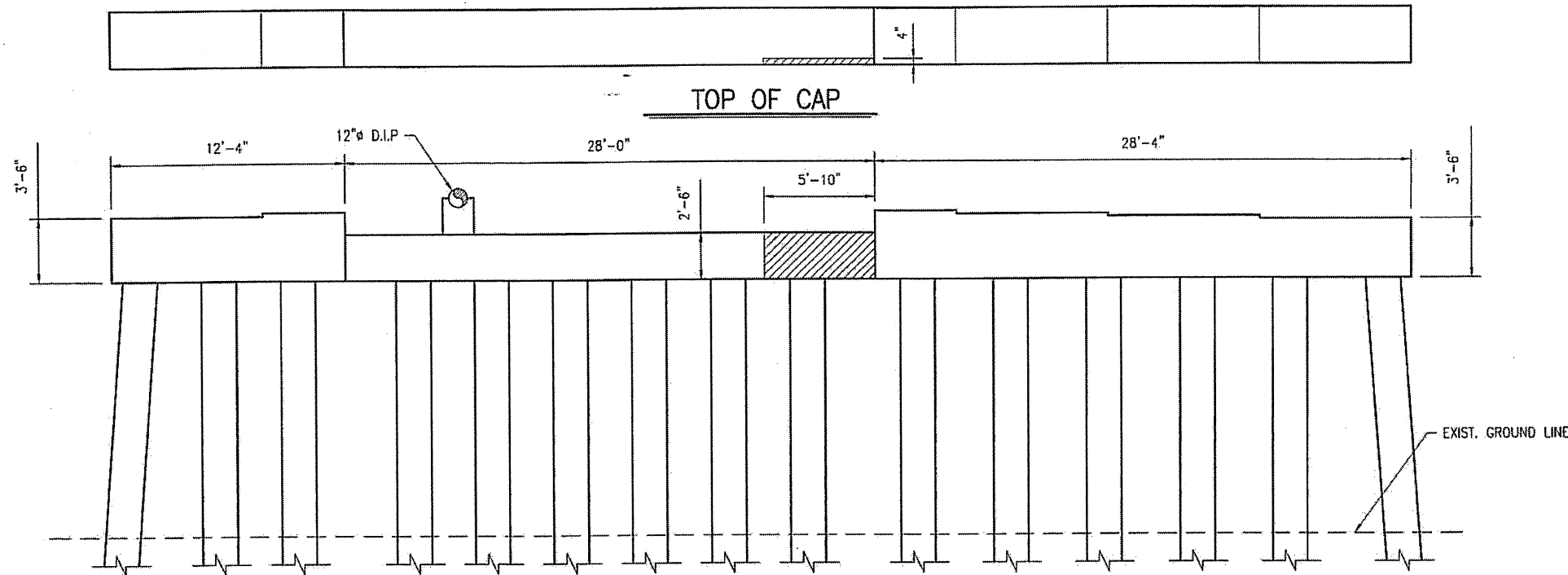
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RALEIGH

CONCRETE CAP REPAIRS
BENT 1

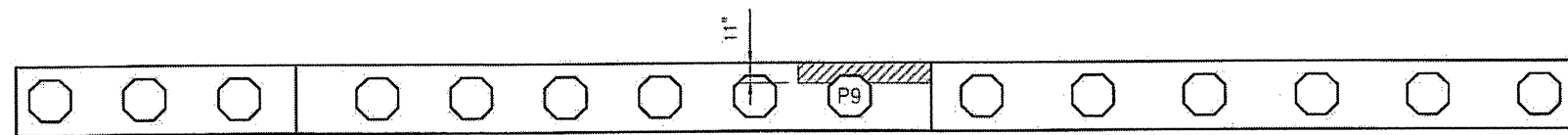


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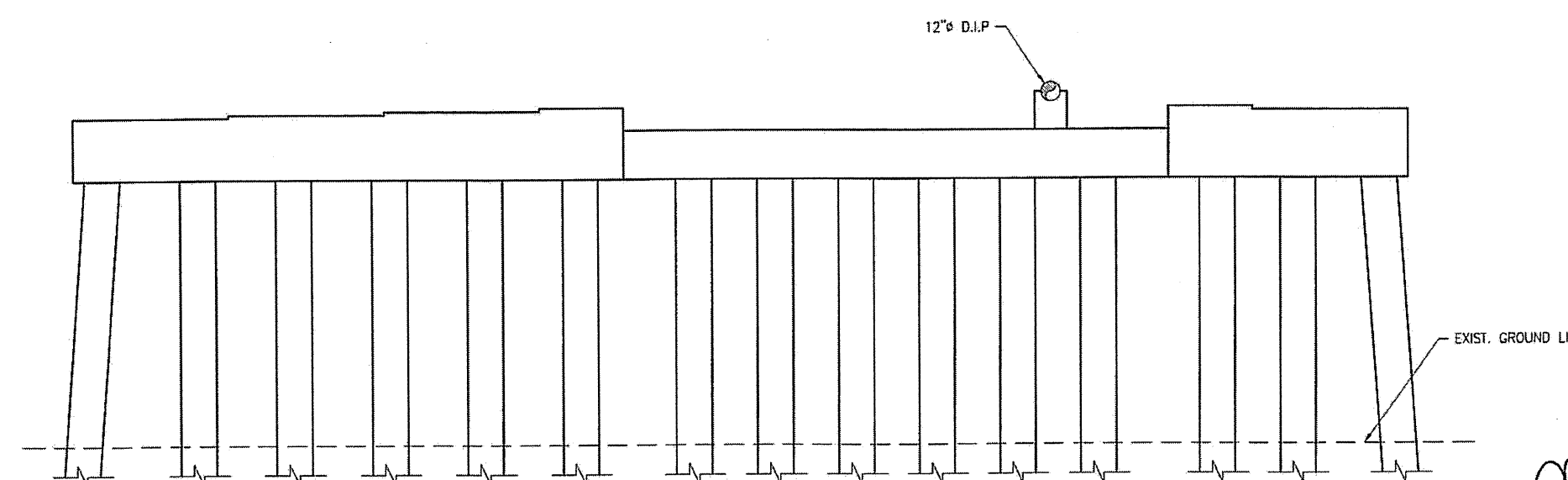
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS
2			4			65



WEST ELEVATION



BOTTOM OF CAP



EAST ELEVATION

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-54. SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 2 = 8 CF

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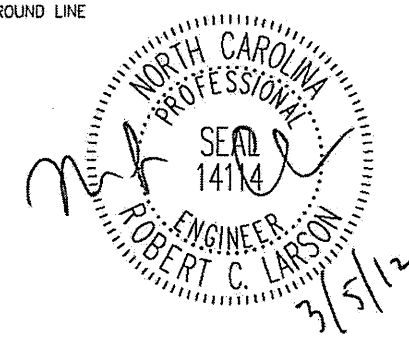


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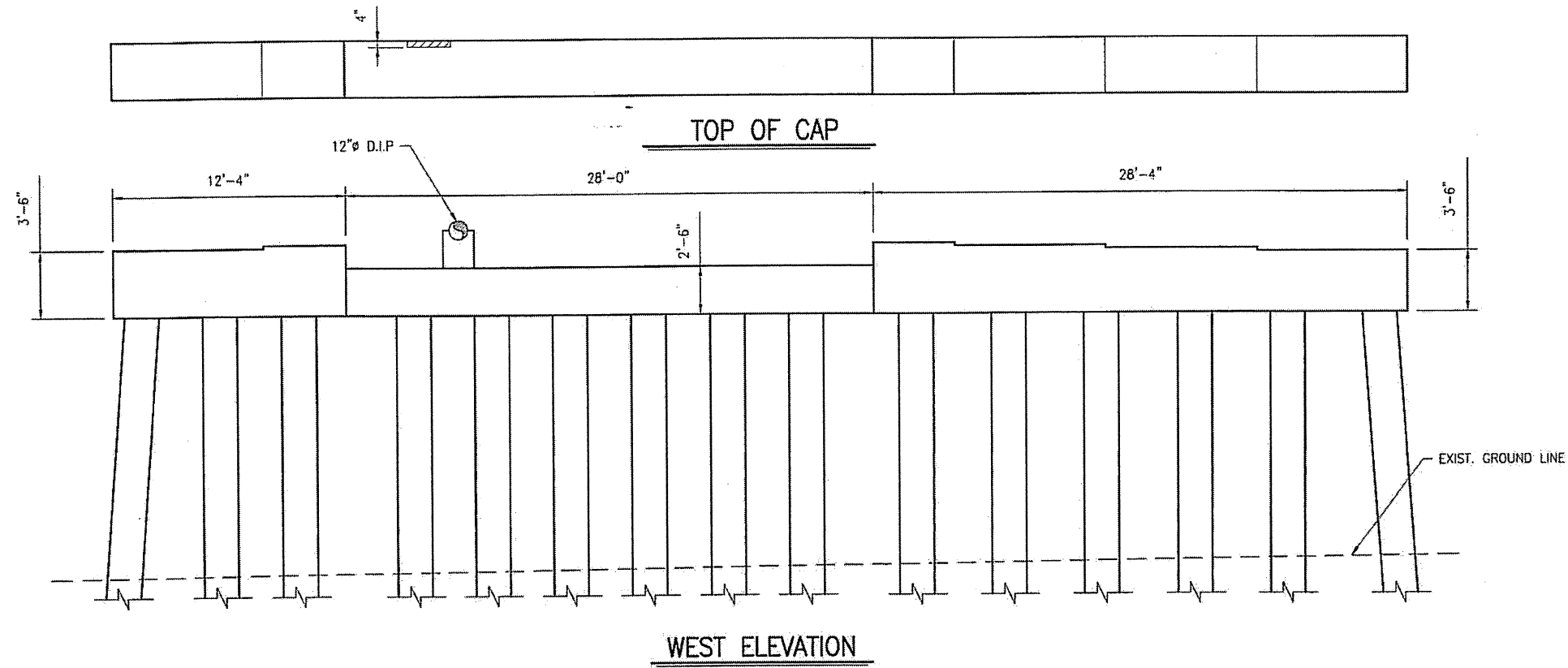
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CONCRETE CAP REPAIRS
BENT 2



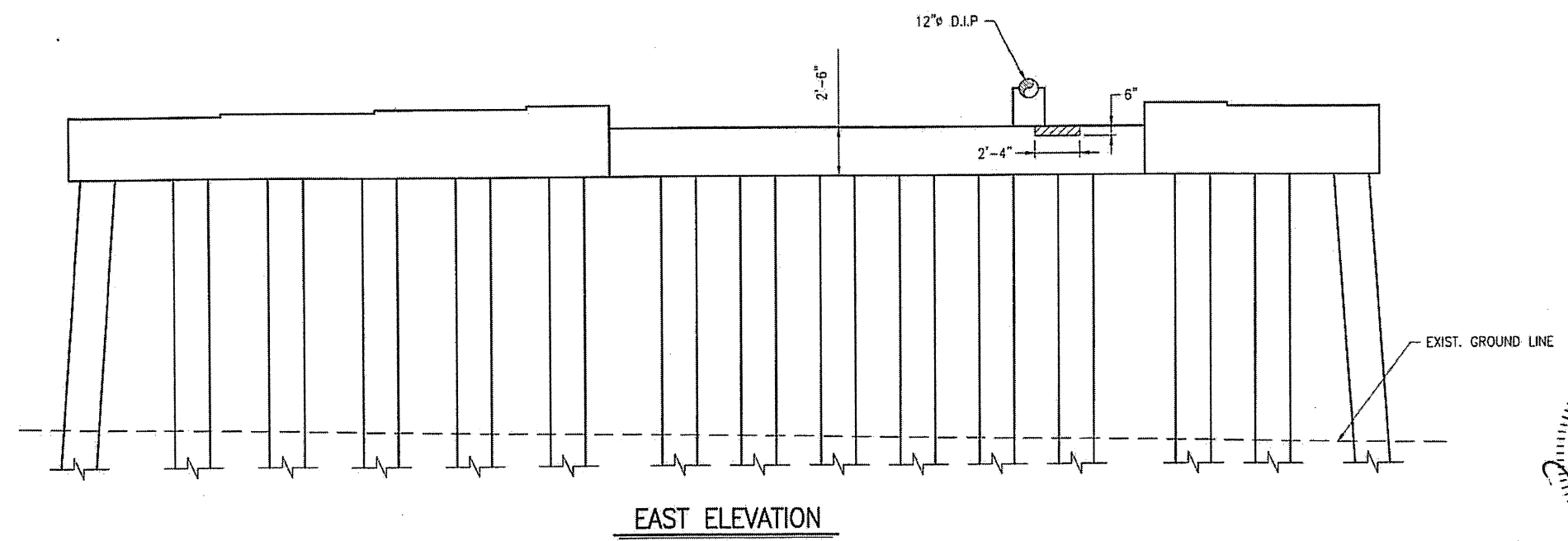
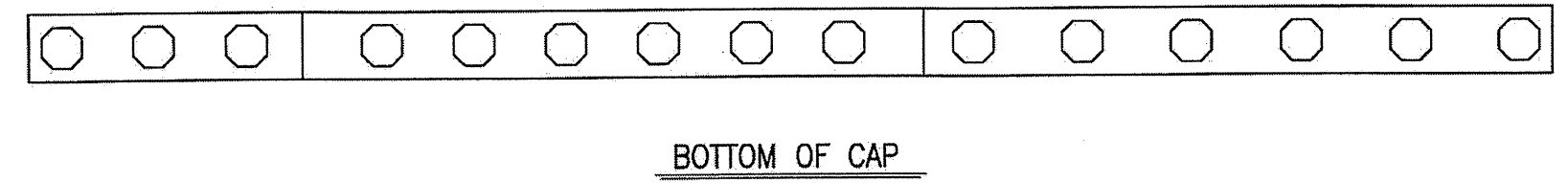
DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS
2			4			65



AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-54.
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 3 = 1 CF



PLAN PREPARED BY:



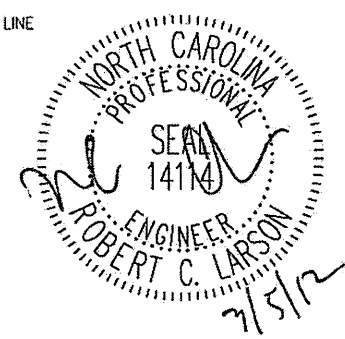
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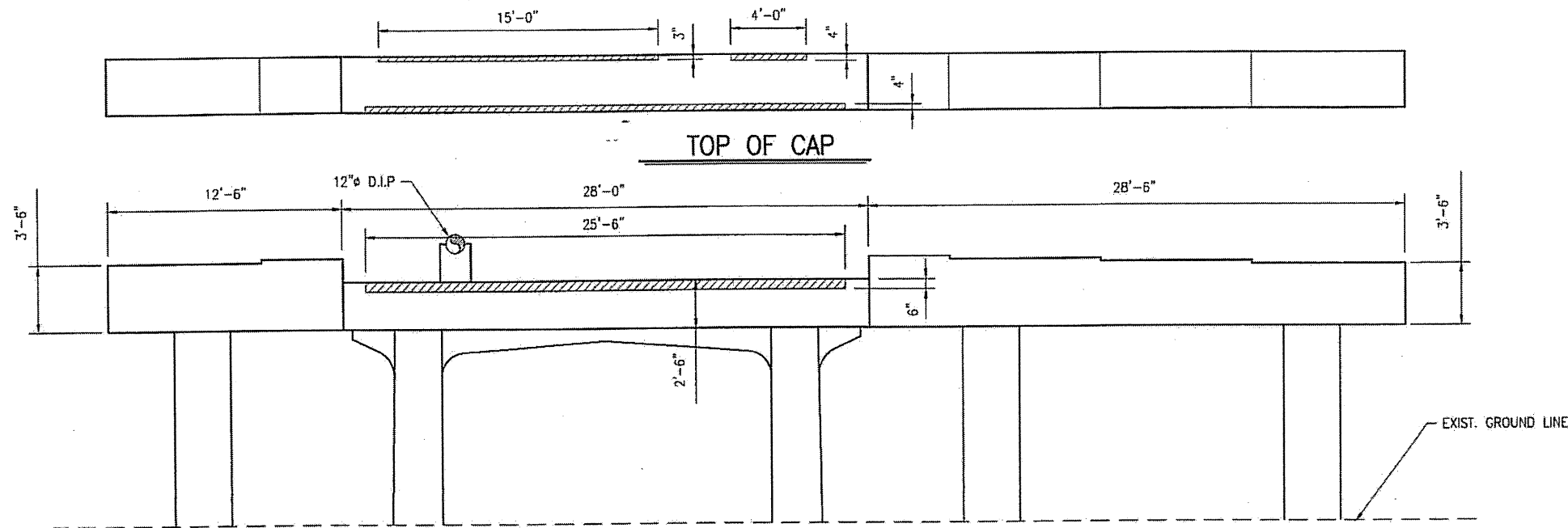
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RALEIGH

CONCRETE CAP REPAIRS
BENT 3



DRAWN BY: F.F. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

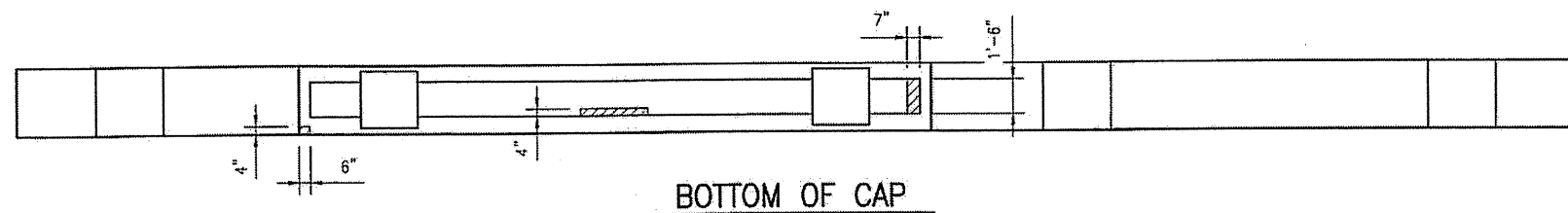
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-57	
1			3			TOTAL SHEETS	
2			4			65	



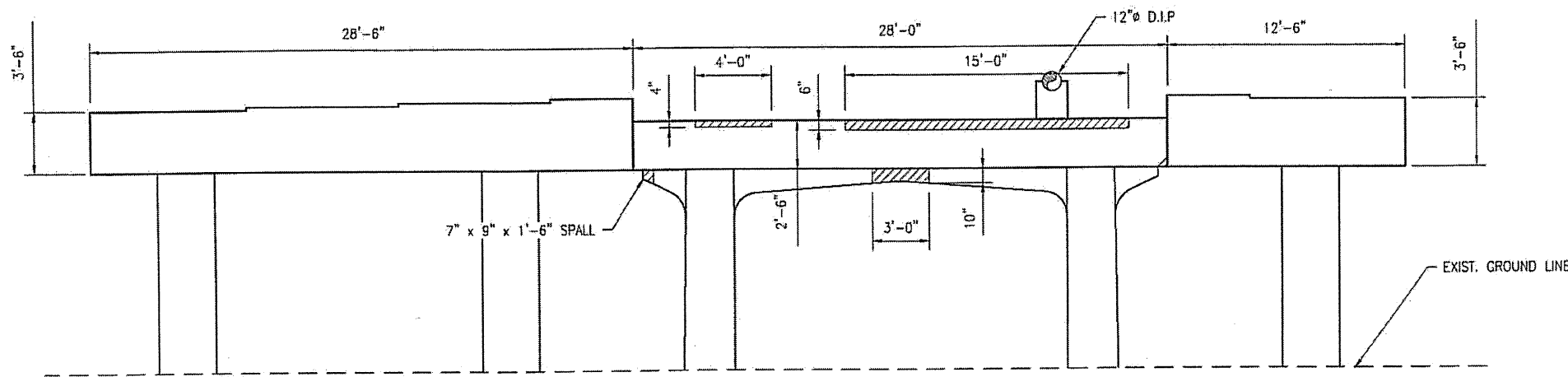
AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-54.
SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
BENT 4 = 11 CF

WEST ELEVATION



BOTTOM OF CAP



EAST ELEVATION

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C, Raleigh, NC 27607
Phone 919 981 0310 Fax 919 981 0451
Firm License No. C-1684 www.aogroup.com
A & O PROJECT #: 2011.031

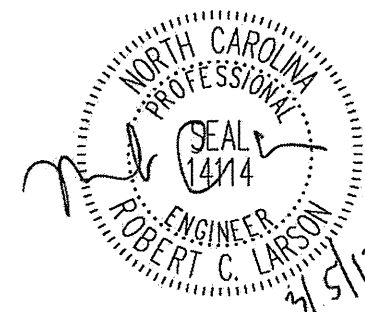
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480154

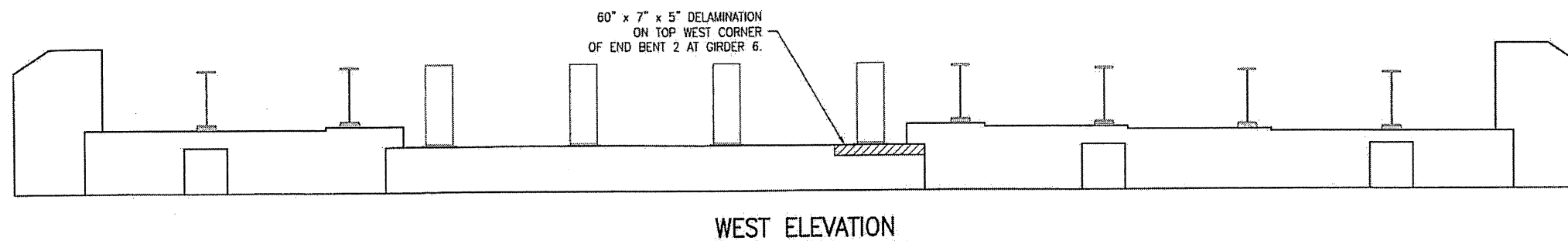
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE CAP REPAIRS
BENT 4



DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-58
1			3			TOTAL SHEETS
2			4			65



60" x 7" x 5" DELAMINATION ON TOP WEST CORNER OF END BENT 2 AT GIRDER 6.

AREA TO BE REPAIRED WITH SHOTCRETE. SEE DETAILS, SHEET S-54. SEE THE SPECIAL PROVISION "SHOTCRETE REPAIRS."

ESTIMATED SHOTCRETE REPAIRS
END BENT 2 = 2 CF

PLAN PREPARED BY:

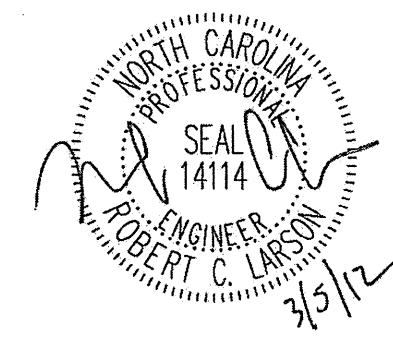


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 4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
 BRIDGE NO. 480154

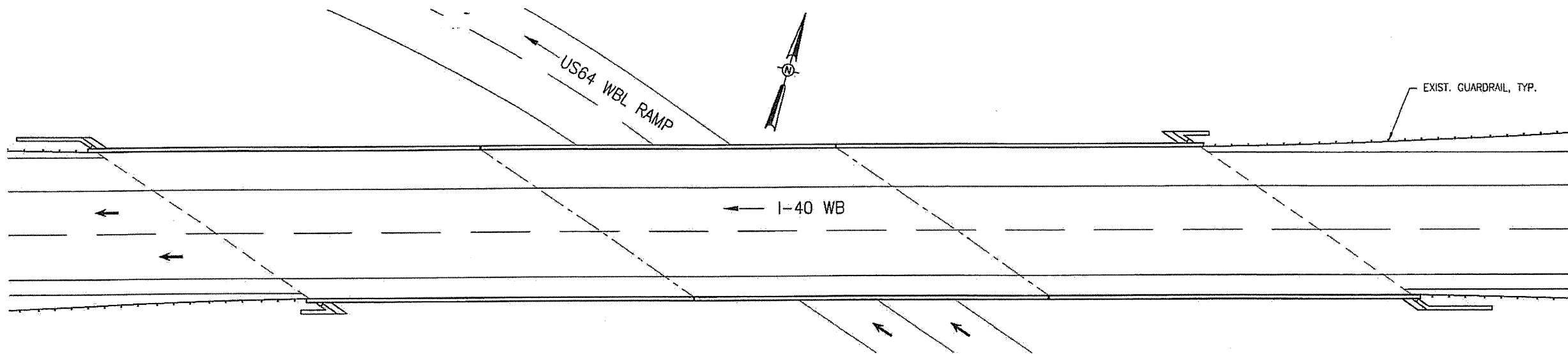
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

CONCRETE CAP REPAIRS
 END BENT 2



DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO	BY:	DATE:	NO	BY:	DATE:	S-59
1			3			TOTAL SHEETS
2			4			65



BRIDGE 480162 ON I-40 WB

LOCATION: BRIDGE 480162, I-40 WB OVER US64 WBL RAMP, 0.5 MILES WEST OF JUNCTION WITH SR2158.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480162

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

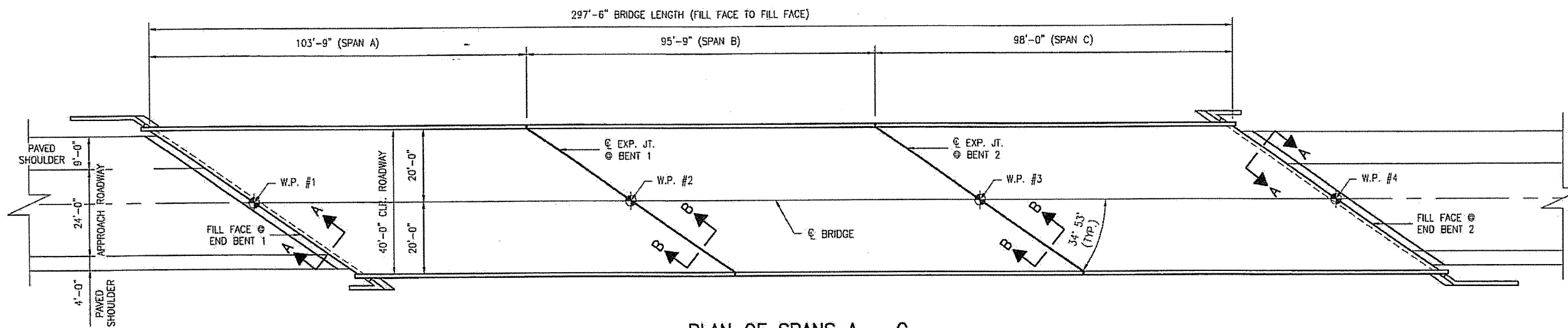
LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

TOTAL BILL OF MATERIAL							
SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY- VERY EARLY STRENGTH	PLACING AND FINISHING LATEX MODIFIED CONC. OVERLAY-VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	FOAM JOINT SEAL	ASPHALT SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. YD.	SQ. YD.	CU. YD.	SQ. YD.	SQ. FT.	LUMP SUM	TON	SQ. YD.
1,341	1,341	56	1,341	10,900	L.S.	1	10

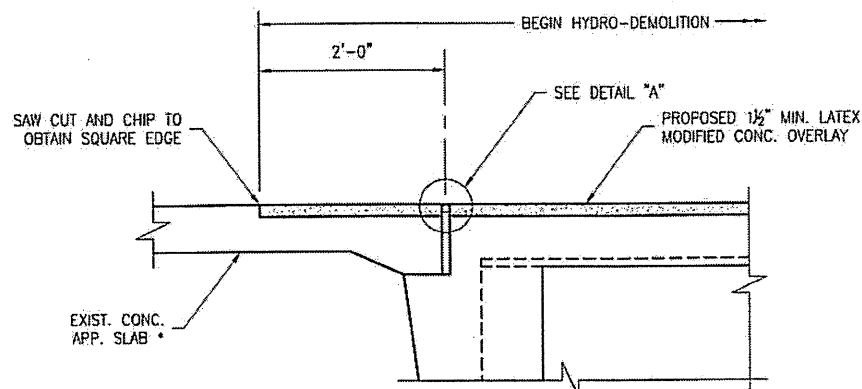


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

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1			3			TOTAL SHEETS
2			4			65

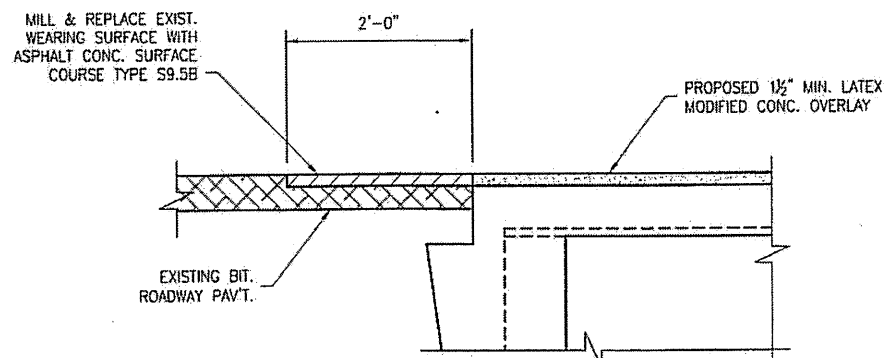


PLAN OF SPANS A - C



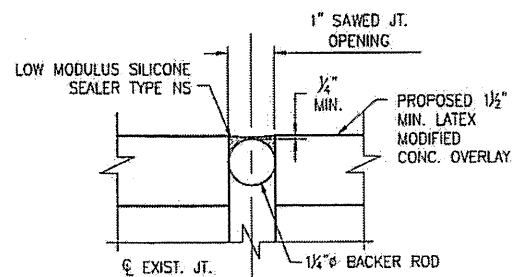
SECTION A-A

* MILL EXIST. BRIDGE APPROACH SLAB AND OVERLAY W/1 1/2" OF LATEX MODIFIED CONCRETE.

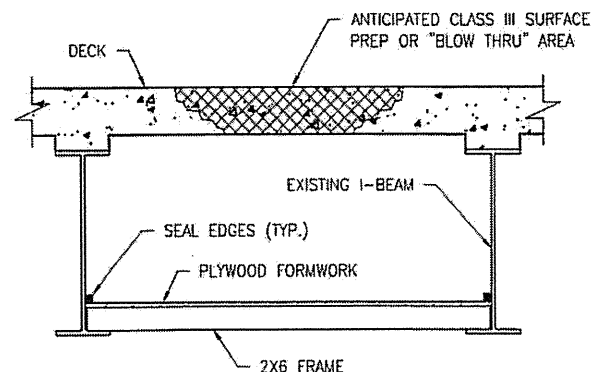


SECTION A-A

SECTION AT PAVED SHOULDERS.



DETAIL "A"



TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.

NOTES:

- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
- FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THRU OF THE DECK. SEE DETAIL, THIS SHEET.
- FOR VERY EARLY STRENGTH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR SECTION B-B, SEE SHEET S-62.
- 1 1/4" BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT TO CONSTRUCT JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

PLAN PREPARED BY:



ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS

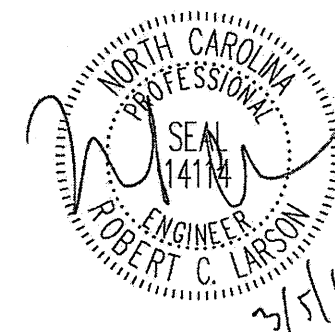
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A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480162

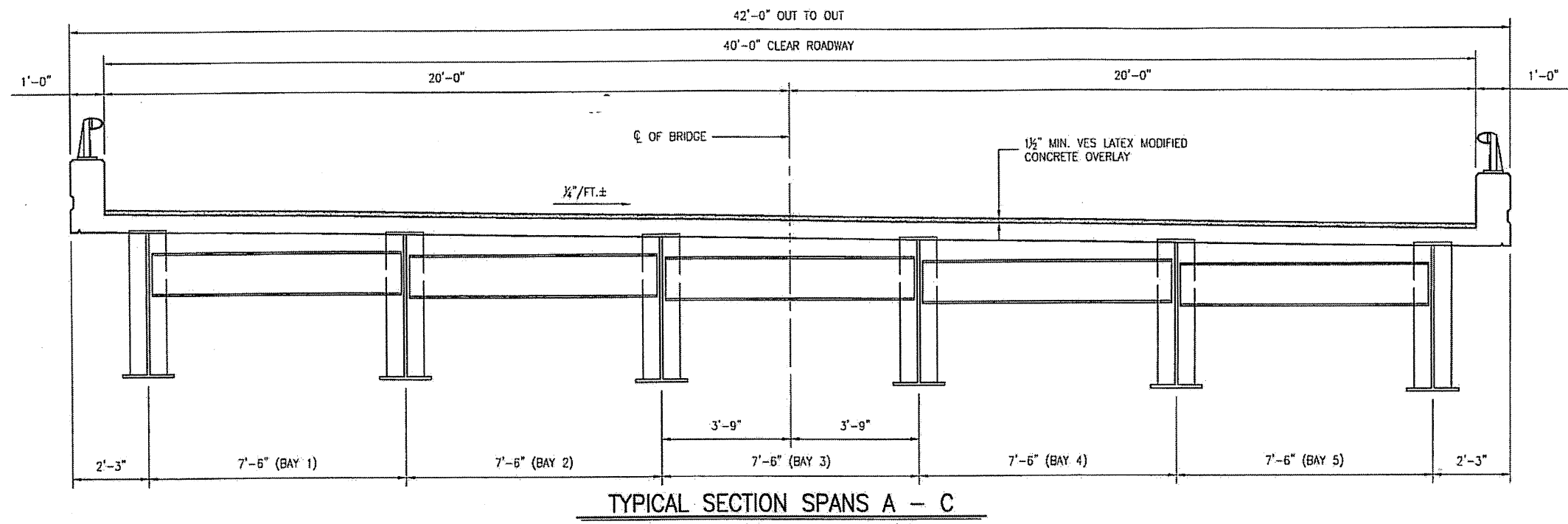
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE PLAN
AND DETAILS

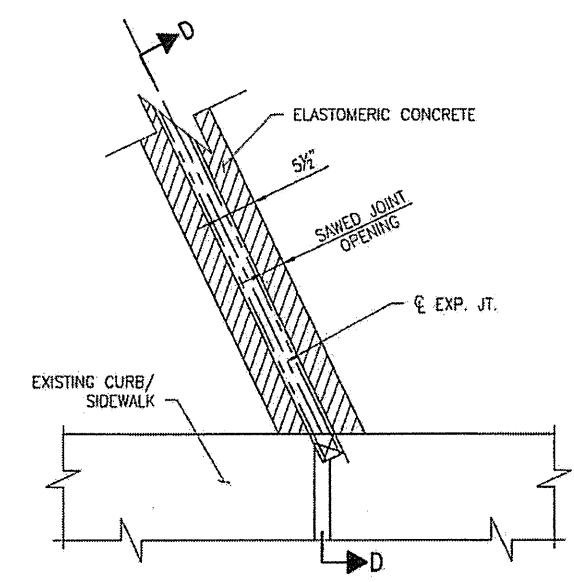


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CHECKED BY: R.C. LARSON DATE: 12-08-11

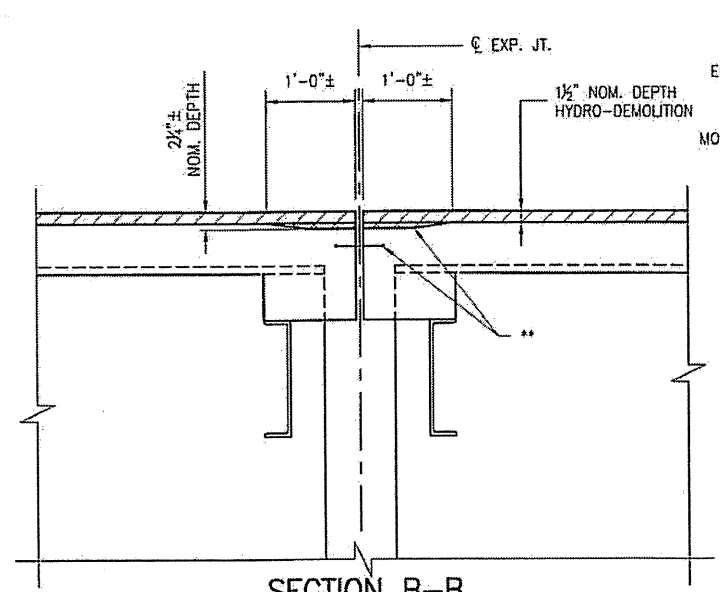
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-61
1			3			TOTAL SHEETS
2			4			65



TYPICAL SECTION SPANS A - C



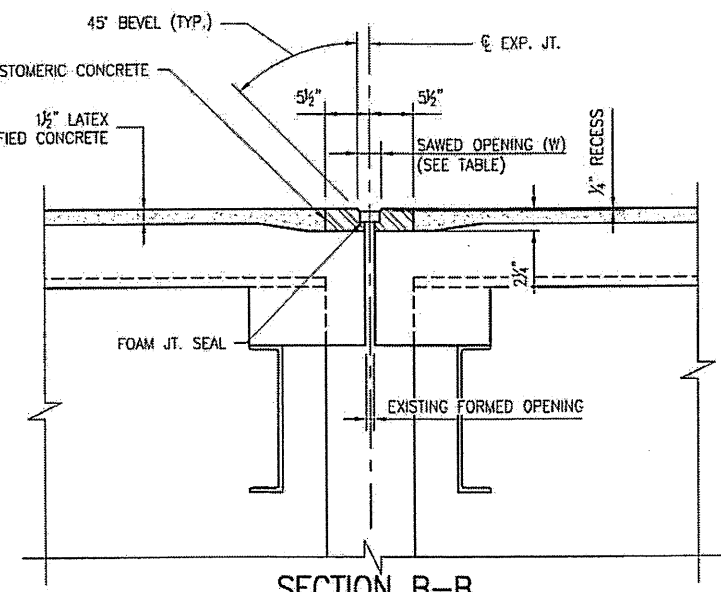
PARTIAL PLAN @ JOINT



SECTION B-B

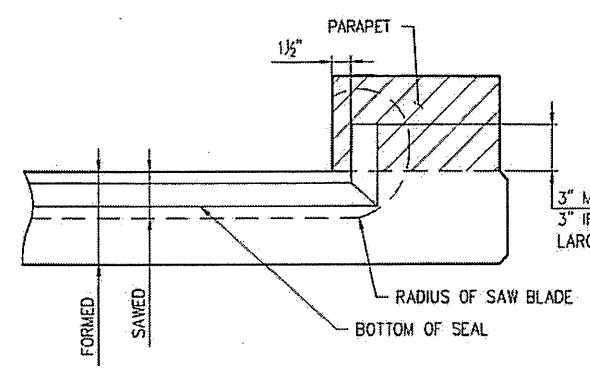
EST. MAX. EXISTING JOINT DEMOLITION

NOTES: RETAIN ALL EXIST. REINF. STEEL. CLEAN AND REPAIR AS REQ'D. ALL EXISTING JT. SEAL MATERIALS ARE TO BE COMPLETELY REMOVED.



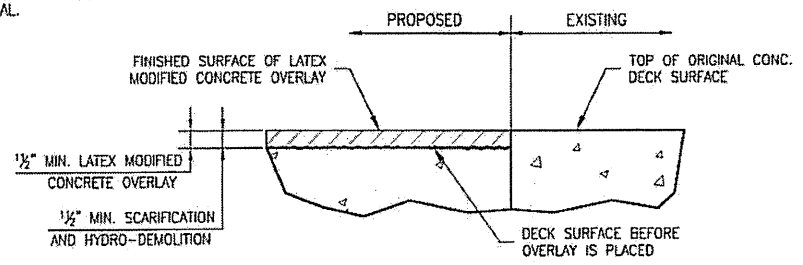
SECTION B-B

FOAM JOINT SEAL
NOTES: USE 2 1/2" UNCOMPRESSED FOAM JOINT SEAL MATERIAL.



SECTION D-D

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF THE PARAPET.



DETAIL FOR LATEX MODIFIED CONC. OVERLAY

NOTE: EXISTING DEPTH OF CONC. COVER IS UNKNOWN. CONTRACTOR TO MAKE HIS OWN DETERMINATION.

** ALL LOOSE AND UNSOUND CONCRETE SHALL BE REMOVED. IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, REMOVE THE ENTIRE WATERSTOP.

FOAM JOINT SAWED OPENING (W) TABLE			
TEMP.	45° F	60° F	90° F
BENT 1	1 1/16"	1 1/8"	1 1/16"
BENT 2	2 1/16"	1 7/8"	1 1/16"

PLAN PREPARED BY:

ALPHA & OMEGA GROUP
CIVIL & STRUCTURAL ENGINEERS
4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
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PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
BRIDGE NO. 480162

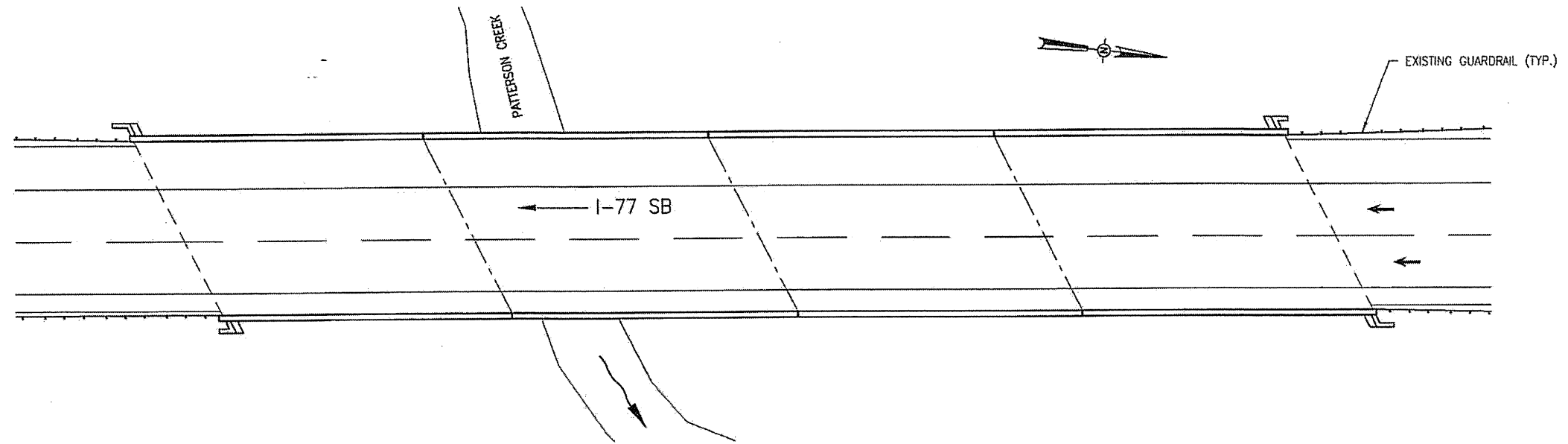
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
AND JOINT DETAILS

NORTH CAROLINA
PROFESSIONAL
SEAL
ENGINEER
ROBERT C. LARSON
3/5/12

REVISIONS						SHEET NO. S-62
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 65
2			4			

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11



BRIDGE 480201 ON I-77 SB

LOCATION: BRIDGE 480201, I-77 SB OVER PATTERSON CREEK,
0.8 MILES NORTH OF JUNCTION WITH SR1890.

PLAN PREPARED BY:



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CIVIL & STRUCTURAL ENGINEERS

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A & O PROJECT #: 2011.031

TOTAL BILL OF MATERIAL						
SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONC. OVERLAY- VERY EARLY STRENGTH	PLACING AND FINISHING LATEX MODIFIED CONC. OVERLAY-VERY EARLY STRENGTH	GROOVING BRIDGE FLOORS	ASPHALT CONC. SURFACE COURSE TYPE S9.5B	INCIDENTAL MILLING
SQ. YD.	SQ. YD.	CU. YD.	SQ. YD.	SQ. FT.	TON	SQ. YD.
1,359	1,359	47	1,359	11,197	30	358

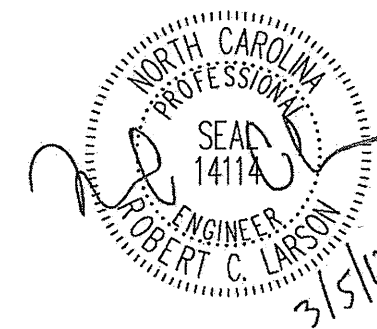
PROJECT NO. WBS 17BP.12.P.3

IREDELL COUNTY

BRIDGE NO. 480201

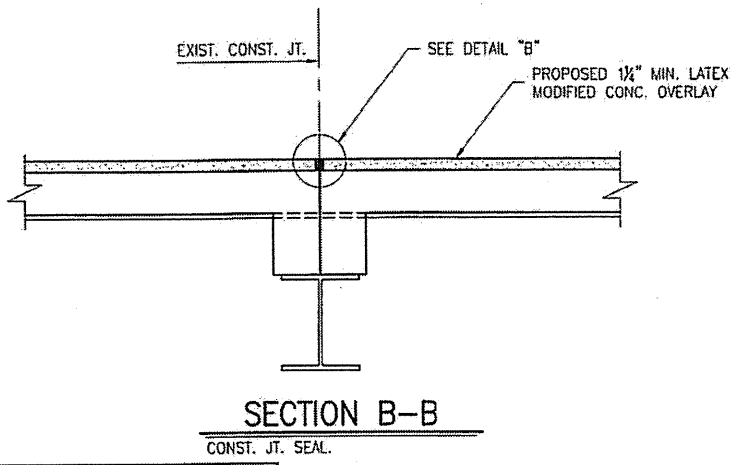
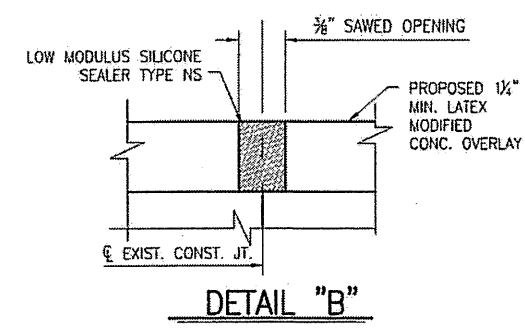
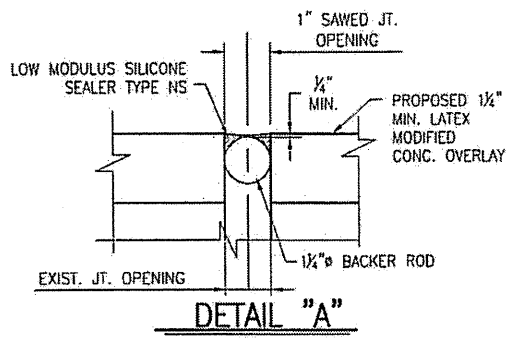
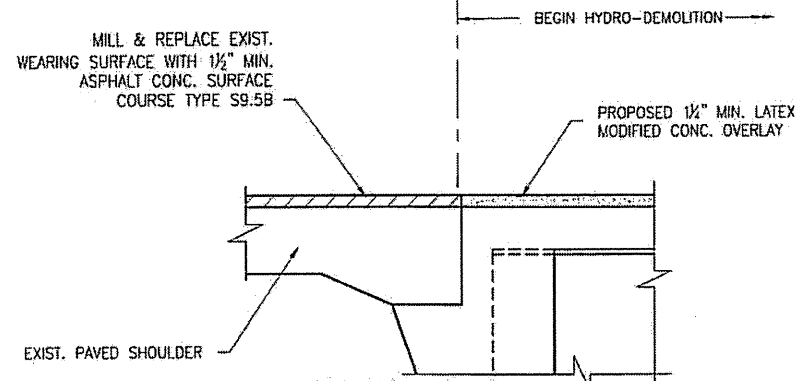
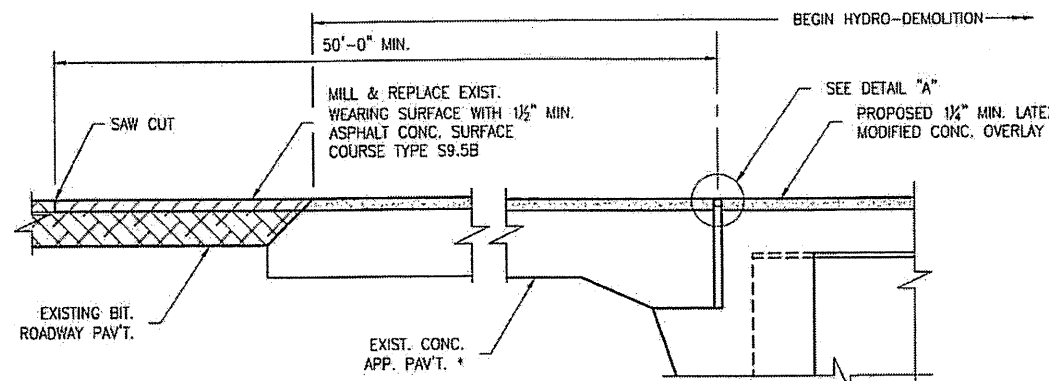
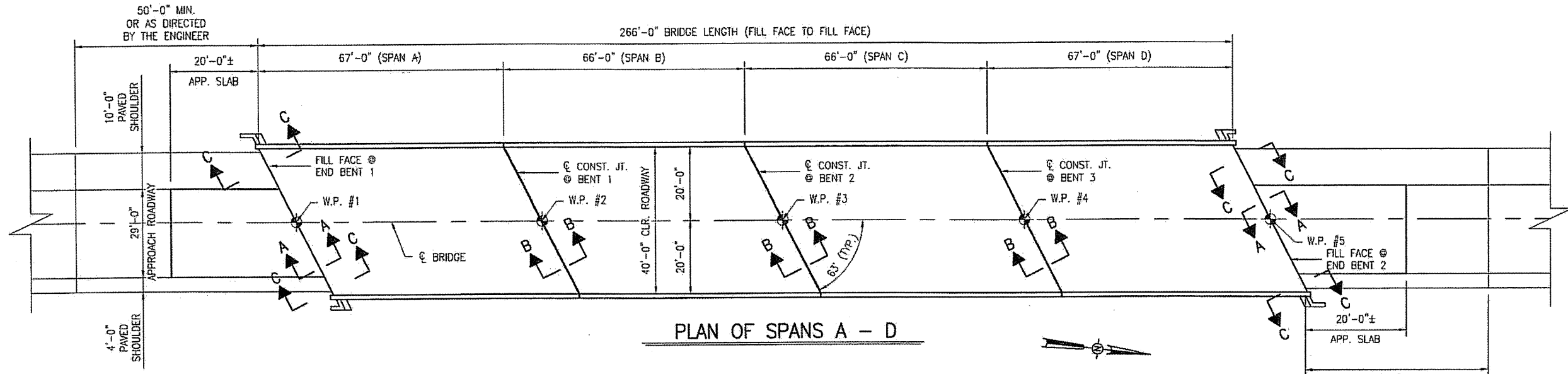
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH
AND TOTAL
BILL OF MATERIAL

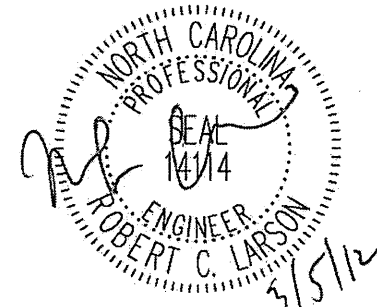


DRAWN BY: F.E. ROBBINS DATE: 12-07-11
CHECKED BY: R.C. LARSON DATE: 12-08-11

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-63
1			3			TOTAL SHEETS
2			4			65



- NOTES:
- EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS WITH LATEX MODIFIED CONCRETE. SEE SPECIAL PROVISIONS.
 - FOR HYDRO DEMOLITION, SEE SPECIAL PROVISIONS.
 - THE CONTRACTOR MUST COLLECT, TREAT, AND DISPOSE OF RUNOFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE SPECIAL PROVISIONS.
 - THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THRU OF THE DECK. SEE DETAIL, SHEET S-65.
 - FOR VERY EARLY STRENGTH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
 - 1/4" BACKER ROD SHALL BE CLOSED CELL EXPANDED POLYETHYLENE FOAM TYPE L. PLACE BACKER ROD TO WITHIN 1'-0" OF EXISTING CURB FACE. NO SEPARATE PAYMENT FOR LABOR, MATERIALS, AND EQUIPMENT NEEDED TO CONSTRUCT JOINT SEALS SHALL BE MADE. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.



PLAN PREPARED BY:

ALPHA & OMEGA GROUP
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 A & O PROJECT #: 2011.031

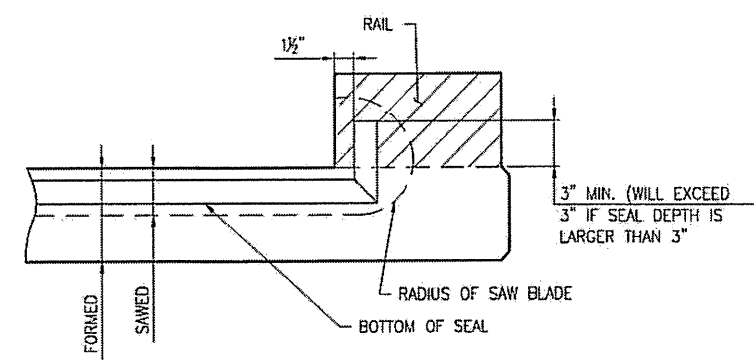
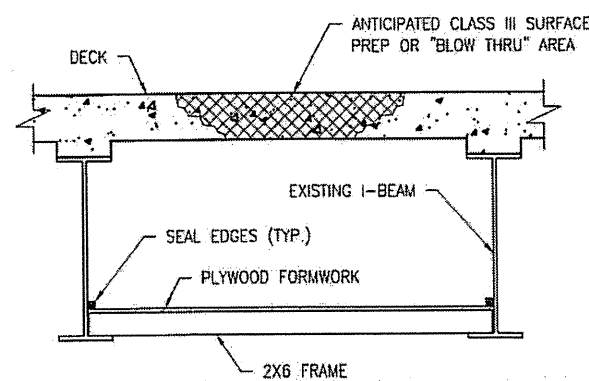
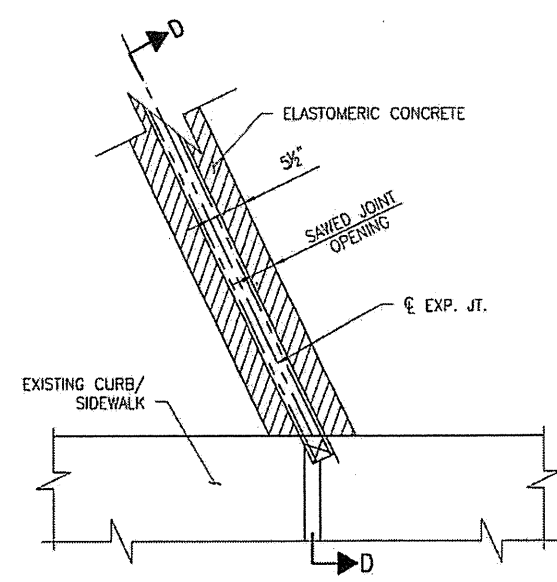
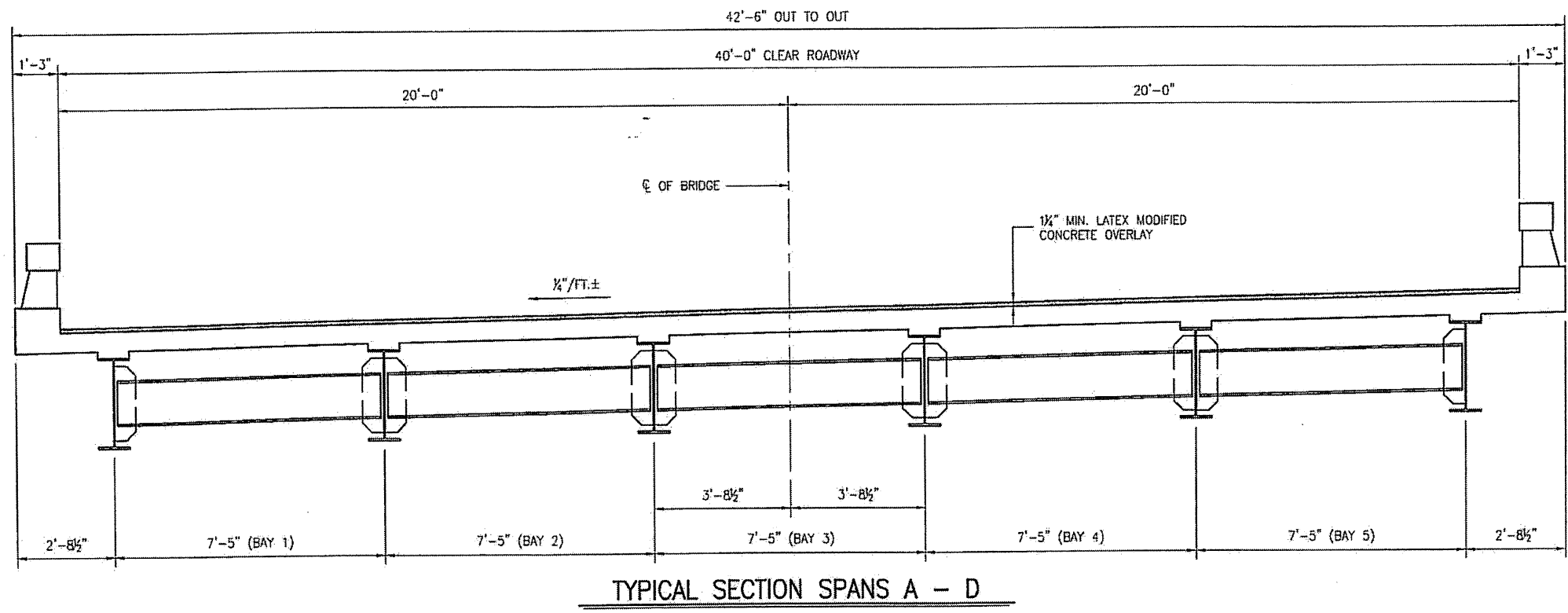
PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
 BRIDGE NO. 480201

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE PLAN
 AND DETAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-64	
1			3			TOTAL SHEETS	
2			4			65	

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11



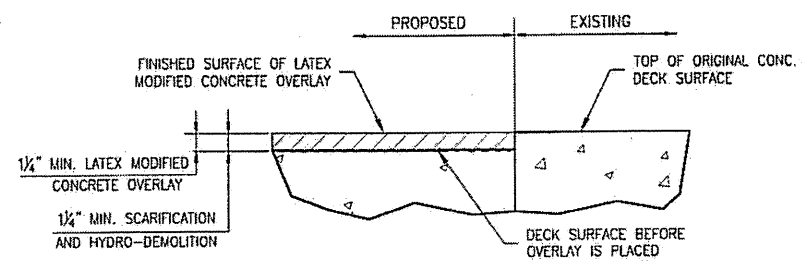
PARTIAL PLAN @ JOINT

TYPICAL BLOW THRU CONTAINMENT AND FORMWORK

SECTION D-D

PROVIDE A METHOD TO CAPTURE WATER AND DEBRIS FROM UNEXPECTED BLOW THRU DURING HYDRO-DEMOLITION.
 SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.
 COSTS FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YD. OF HYDRO-DEMOLITION.

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP PARALLEL TO FACE OF THE RAIL.



DETAIL FOR LATEX MODIFIED CONC. OVERLAY

NOTE: EXISTING DEPTH OF CONC. COVER IS UNKNOWN. CONTRACTOR TO MAKE HIS OWN DETERMINATION.

PLAN PREPARED BY:



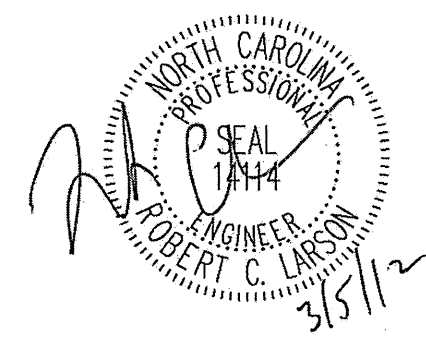
ALPHA & OMEGA GROUP
 CIVIL & STRUCTURAL ENGINEERS

4601 Lake Boone Trail, Ste. 3C Raleigh, NC 27607
 Phone 919 981 0310 Fax 919 981 0431
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 A & O PROJECT #: 2011.031

PROJECT NO. WBS 17BP.12.P.3
IREDELL COUNTY
 BRIDGE NO. 480201

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION
 AND DETAILS



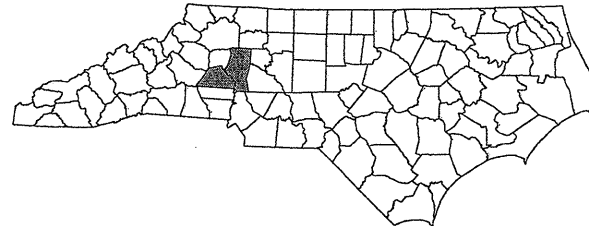
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NO	BY:	DATE:	NO	BY:	DATE:	S-65	
1			3			TOTAL SHEETS	
2			4			65	

DRAWN BY: F.E. ROBBINS DATE: 12-07-11
 CHECKED BY: R.C. LARSON DATE: 12-08-11

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN
CATAWBA AND IREDELL COUNTIES

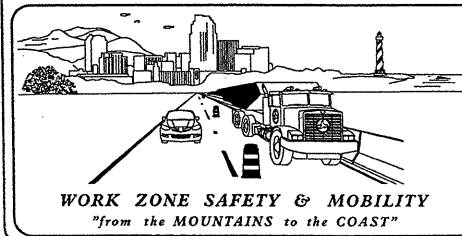
DIVISION 12



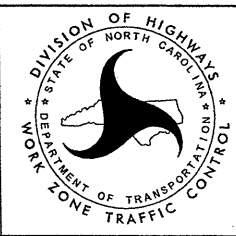
BRIDGE PRESERVATION

- CATAWBA 20 – NC 10 over Catawba River**
CATAWBA 66 – SR 2959 (Old NC 127) over US 321
CATAWBA 99 – NC 150 over Catawba River
CATAWBA 161 – SR 1007 (Lenoir Rhyne Blvd.) over I-40

- IREDELL 1 – SR 2362 (Triplett Rd.) over Third Creek**
IREDELL 26 – NC 150 over I-77
IREDELL 50 – SR 1502 (Sharon School Rd.) over I-40
IREDELL 71 – US 21 over I-77
IREDELL 109 – I-40 WB over US 64/NC 90 (W. Front St.)
IREDELL 154 – SR 2321 (E. Broad St.) over I-77 and Salisbury Creek
IREDELL 162 – I-40 WB over US 64 WB Ramp
IREDELL 201 – I-77 SB over Patterson Creek



PLAN PREPARED FOR NCDOT BRIDGE MANAGEMENT UNIT
RALEIGH, NC



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-2	GENERAL NOTES
TMP-3	PHASING
TMP-4	CATAWBA #161 - SR 1007 NORTHBOUND RIGHT LANE WORK AREA
TMP-4A	CATAWBA #161 - SR 1007 SOUTHBOUND RIGHT LANE WORK AREA
TMP-4B	CATAWBA #161 - SR 1007 LEFT LANE WORK AREA
TMP-5	IREDELL #26 - NC 150 EASTBOUND RIGHT LANE WORK AREA
TMP-5A	IREDELL #26 - NC 150 WESTBOUND RIGHT LANE WORK AREA
TMP-5B	IREDELL #26 - NC 150 LEFT LANE WORK AREA
TMP-6	IREDELL #71 - US 21 EASTBOUND RIGHT LANE WORK AREA
TMP-6A	IREDELL #71 - US 21 WESTBOUND RIGHT LANE WORK AREA
TMP-6B	IREDELL #71 - US 21 LEFT LANE WORK AREA
TMP-7,7A	IREDELL #109 - I-40 WEST ROAD CLOSURE
TMP-8	IREDELL #154 - SR 2321 EASTBOUND RIGHT LANE WORK AREA
TMP-8A	IREDELL #154 - SR 2321 WESTBOUND RIGHT LANE WORK AREA
TMP-8B	IREDELL #154 - SR 2321 LEFT LANE WORK AREA
TMP-9	IREDELL #162 - I-40 WEST ROAD CLOSURE
TMP-9A	IREDELL #162 - I-40 WEST DETOUR ROUTE

TRAFFIC MANAGEMENT STRATEGY

BRIDGE WORK WILL BE PERFORMED USING TIME RESTRICTED LANE CLOSURES AND ROAD CLOSURES. REFER TO SHEET TMP-3 FOR PHASING.



PLAN PREPARED BY:
Stantec Consulting Services Inc.
801 Jones Franklin Road-Suite 300
Raleigh, NC 27606
Tel. 919.851.6866
Fax. 919.851.7024
www.stantec.com

BETSY L. WATSON, P.E. *TRAFFIC ENGINEER*
GEORGE KARAGEORGE *TRANSPORTATION DESIGNER*

APPROVED: *Betsy L. Watson*
DATE: 2/13/12

SEAL



























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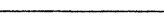
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

SHEET NO.
TMP-1




LEGEND

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  WORK AREA
-  PAVEMENT REMOVAL
-  NORTH ARROW
-  TYPE III BARRICADE
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  CHANGEABLE MESSAGE SIGN (CMS)
-  FLAGGER
-  FLASHING ARROW PANEL (TYPE C)
-  LAW ENFORCEMENT
-  TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
-  PORTABLE CONCRETE BARRIER (PCB)
-  TEMPORARY CRASH CUSHION
-  TEMPORARY SHORING
-  WORK ZONE SIGN-PORTABLE
-  WORK ZONE SIGN-STATIONARY
-  WORK ZONE SIGN-STATIONARY OR PORTABLE

- SIGNALS**
-  EXISTING
 -  PROPOSED
 -  TEMPORARY

- PAVEMENT MARKINGS**
-  EXISTING PAVEMENT MARKING (GRAY)
 -  SKIP LINES
 -  MINI-SKIP LINES
 -  SOLID LINES

- PAVEMENT MARKING SYMBOLS**
-  PAVEMENT MARKING SYMBOLS
 -  EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)
 -  ONLY PAVEMENT MARKING ALPHANUMERIC CHARACTERS


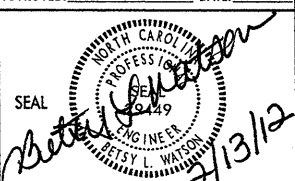
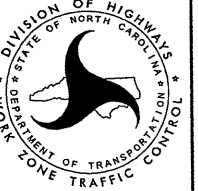
- PAVEMENT MARKERS**
-  CRYSTAL/CRYSTAL
 -  CRYSTAL/RED
 -  YELLOW/YELLOW

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

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 <p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6886 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	<p>APPROVED: _____ DATE: _____</p> <p>SEAL</p>  <p>2/13/12</p>	 <p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>ROADWAY STANDARD DRAWINGS & LEGEND</p>
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PROJ. REFERENCE NO.	SHEET NO.
17BP.12.P.3	TMP-3

PHASING

CATAWBA COUNTY

BRIDGE # 20 - NC 10 OVER CATAWBA RIVER

USE FLAGGER CONTROLLED TEMPORARY LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02, SHEET 1.

BRIDGE #66 - OLD NC 127 (SR 2959) OVER US 321

USE FLAGGER CONTROLLED TEMPORARY LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02, SHEET 1.

BRIDGE #99 - NC 150 OVER RAILROAD

USE FLAGGER CONTROLLED TEMPORARY LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02, SHEET 1.

BRIDGE #161 - SR 1007 (LENOIR RHYNE BLVD.) OVER I-40

USE LANE CLOSURES PER SHEETS TMP-4,4A,4B.

IREDELL COUNTY

BRIDGE #1 - SR 2362 (TRIPLETT RD.) OVER THIRD CREEK

USE FLAGGER CONTROLLED TEMPORARY LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02, SHEET 1.

BRIDGE #26 - NC 150 OVER I-77

ON NC 150 USE LANE CLOSURES PER SHEETS TMP-5,5A,5B.

DURING SUBSTRUCTURE REPAIRS USE LANE CLOSURES ON I-77 PER ROADWAY STANDARD DRAWING 1101.02, SHEET 4.

BRIDGE #50 - SR 1502 (SHARON SCHOOL RD.) OVER I-40

ON SR 1502 USE FLAGGER CONTROLLED TEMPORARY LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02, SHEET 1.

DURING SUBSTRUCTURE REPAIRS USE LANE CLOSURES ON I-40 PER ROADWAY STANDARD DRAWING 1101.02, SHEET 4.

BRIDGE #71 - US 21 (TURNERSBURG HWY.) OVER I-77

ON US 21 USE LANE CLOSURES PER SHEETS TMP-6,6A,6B.

DURING SUBSTRUCTURE REPAIRS USE LANE CLOSURES ON I-77 PER ROADWAY STANDARD DRAWING 1101.02, SHEET 4.

BRIDGE #109 - I-40 WEST OVER US 62/NC 90 (W. FRONT ST.)

CLOSE I-40 WEST PER SHEETS TMP-7,7A.

TRAFFIC IS DETOURED USING THE INTERCHANGE RAMPS.

DURING SUBSTRUCTURE REPAIRS USE LANE CLOSURES ON US 62/NC 90 PER ROADWAY STANDARD DRAWING 1101.02, SHEET 3.

BRIDGE #154 - SR 2321 (E. BROAD ST.) OVER I-77 AND SALISBURY CREEK

USE LANE CLOSURES PER SHEETS TMP-8,8A,8B.


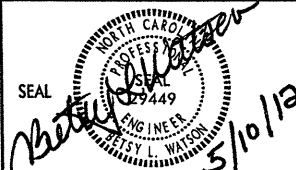
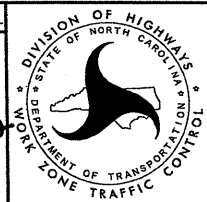
BRIDGE #162 - I-40 WEST OVER US 64 WEST RAMP

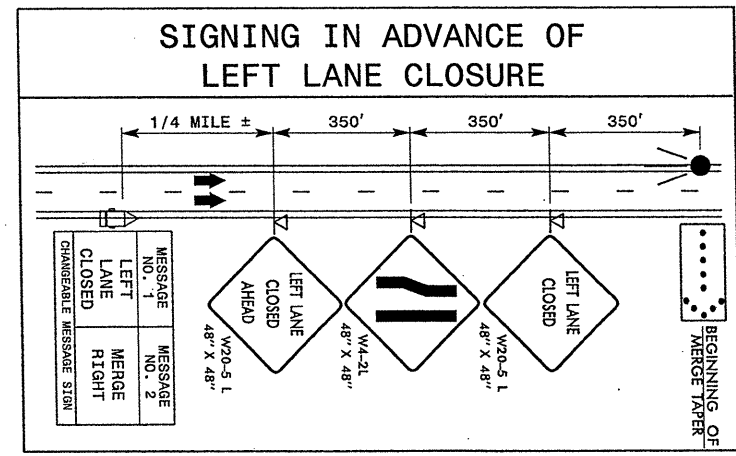
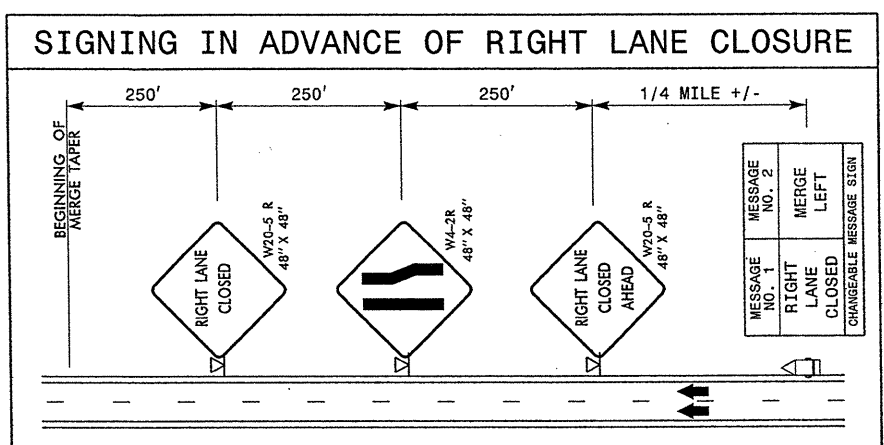
DETOUR I-40 WEST TRAFFIC PER SHEET TMP-9A AND CLOSE I-40 WEST PER SHEET TMP-9.

BRIDGE #201 - I-77 SOUTH OVER PATTERSON CREEK

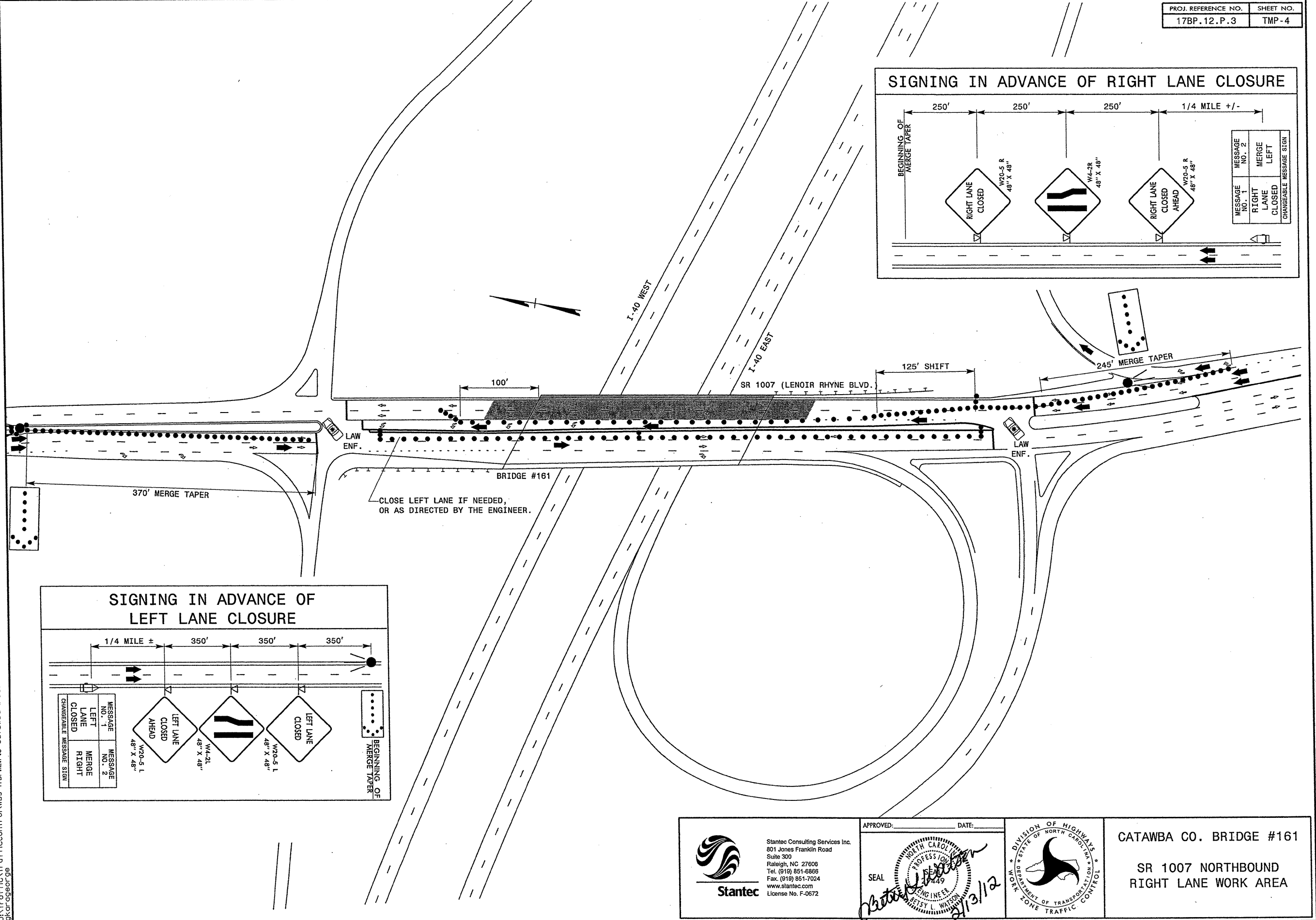
USE LANE CLOSURES PER ROADWAY STANDARD DRAWING 1101.02, SHEET 4.

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 Stantec	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____  <i>West L. Wilson</i> 5/10/12	 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA OK ZONE TRAFFIC CONTROL	PHASING
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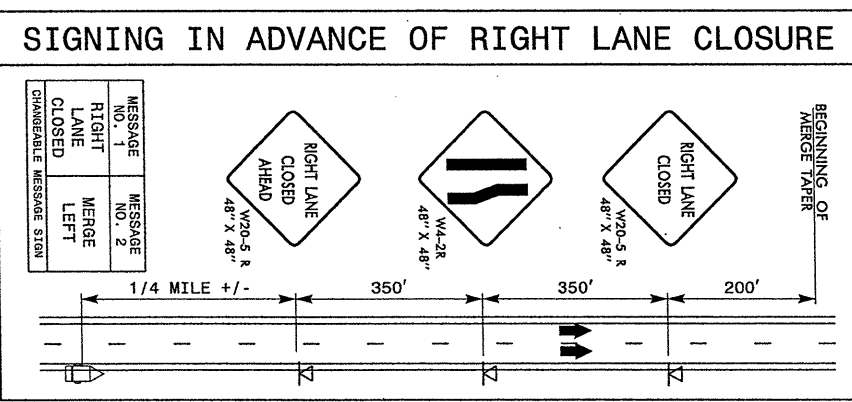
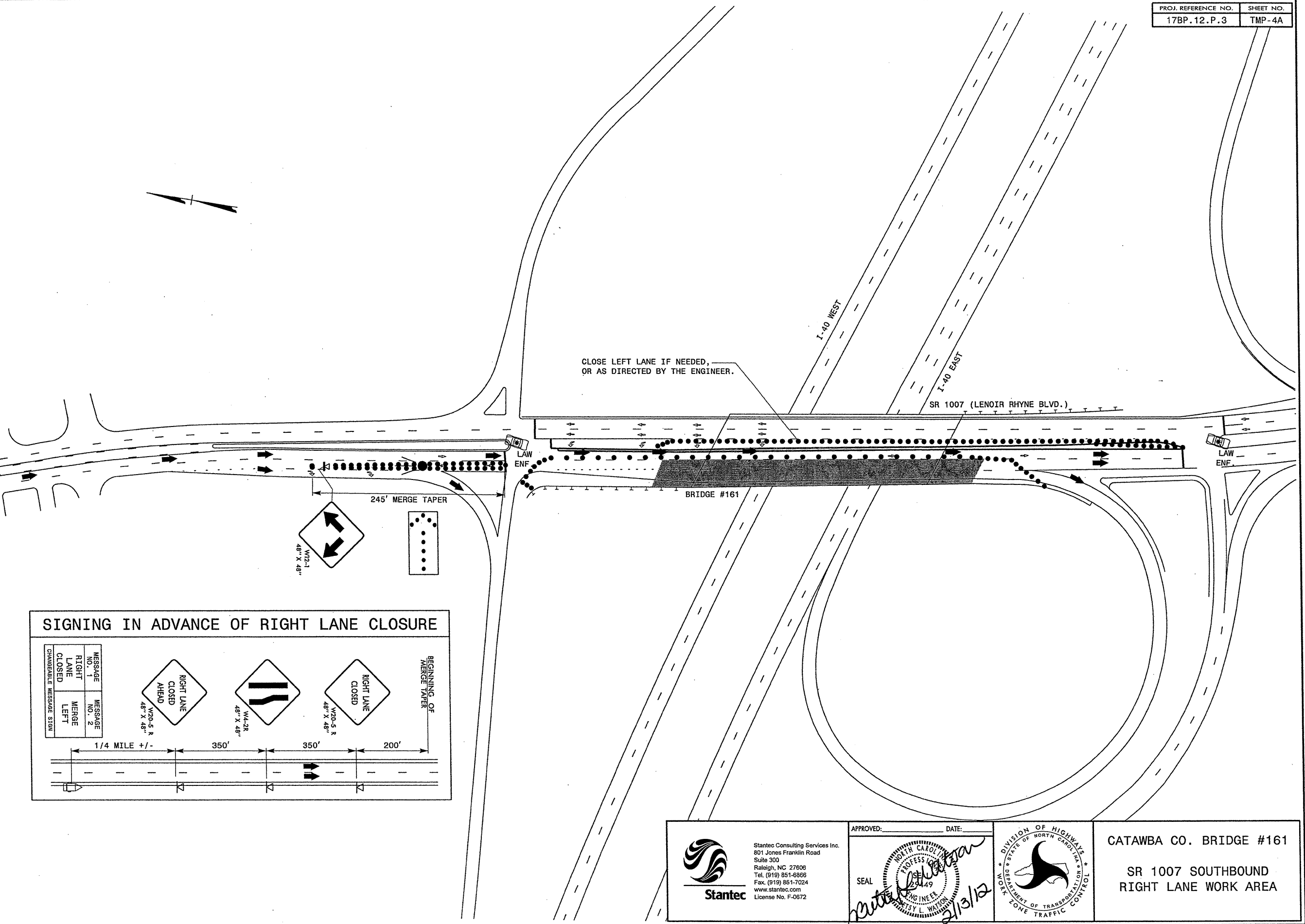



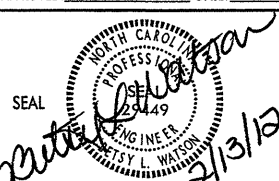

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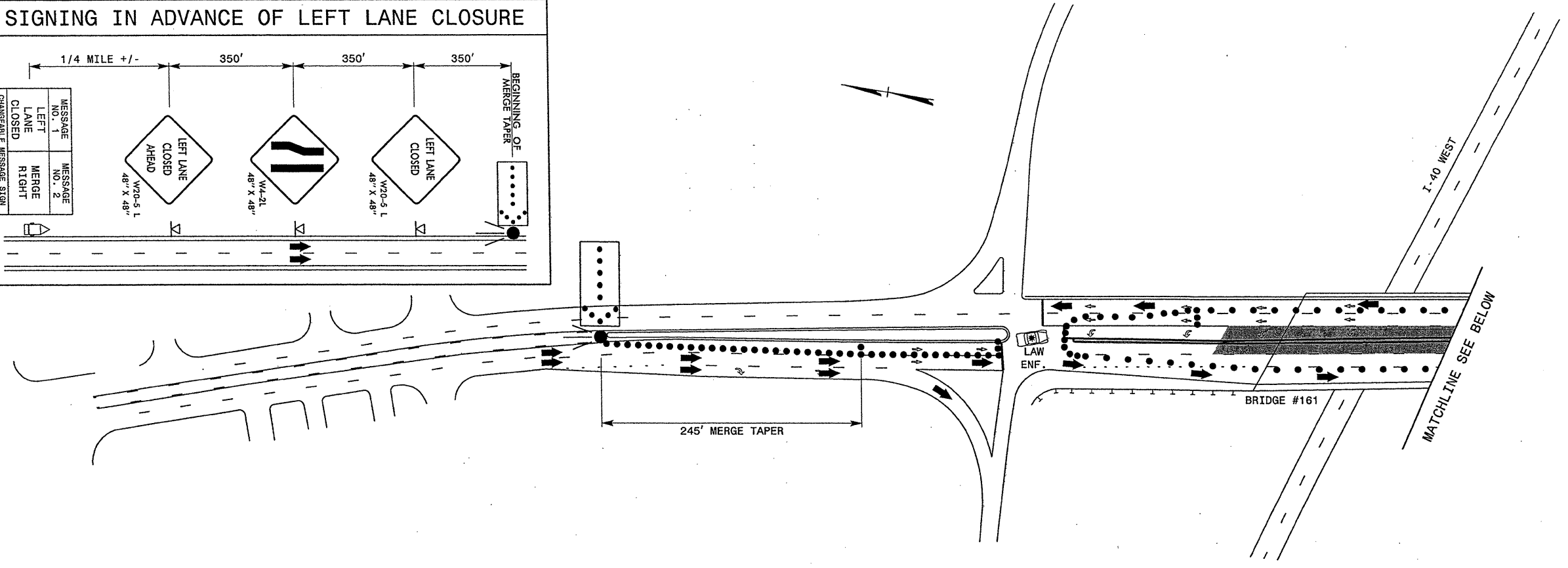
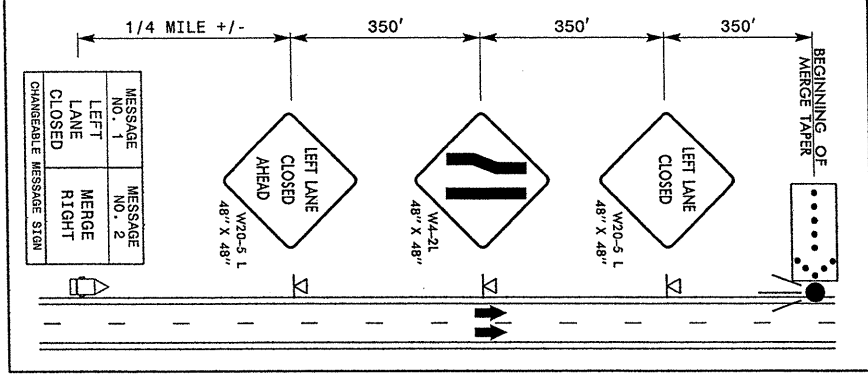
<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel: (919) 851-6865 Fax: (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	<p>DIVISION OF HIGHWAY STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION LOOK AHEAD ZONE TRAFFIC CONTROL</p>	<p>CATAWBA CO. BRIDGE #161</p> <p>SR 1007 NORTHBOUND RIGHT LANE WORK AREA</p>
	<p>2/13/12</p>		

2/10/2012
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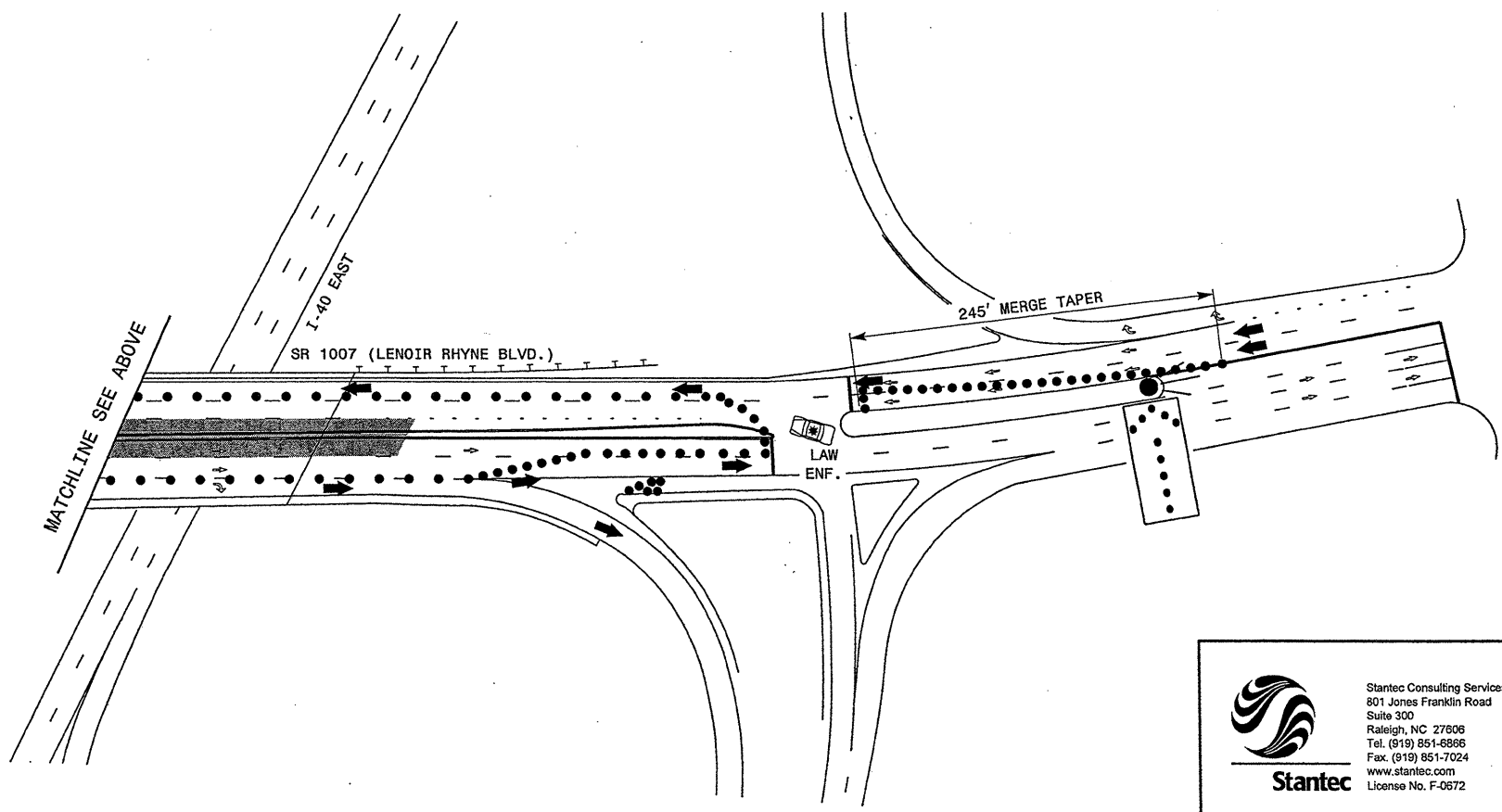
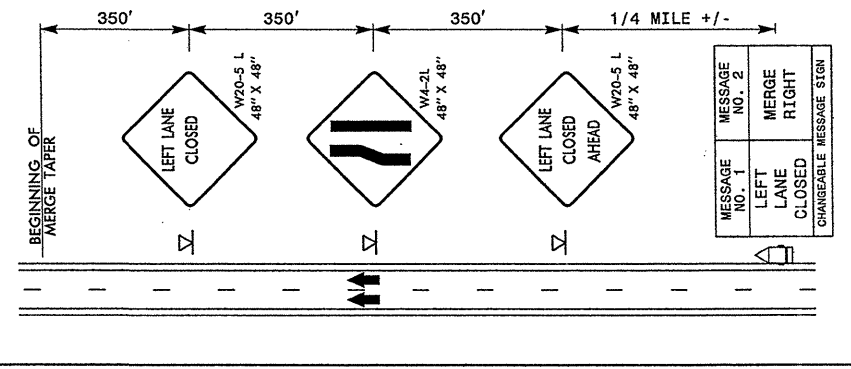


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CATAWBA CO. BRIDGE #161 SR 1007 SOUTHBOUND RIGHT LANE WORK AREA			

SIGNING IN ADVANCE OF LEFT LANE CLOSURE



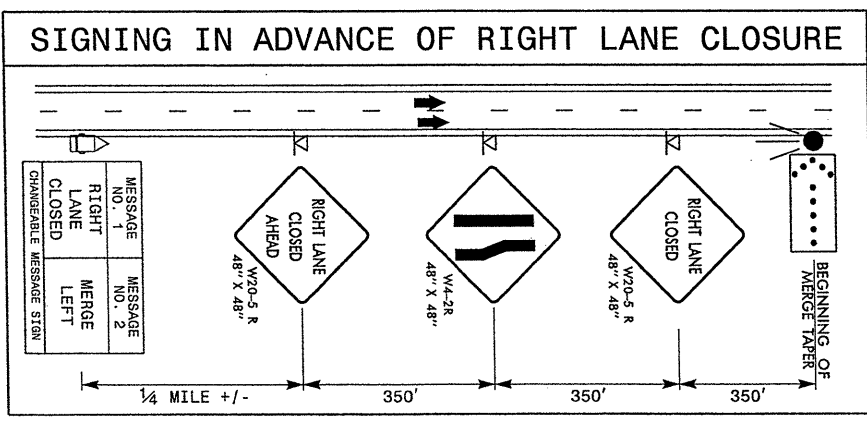
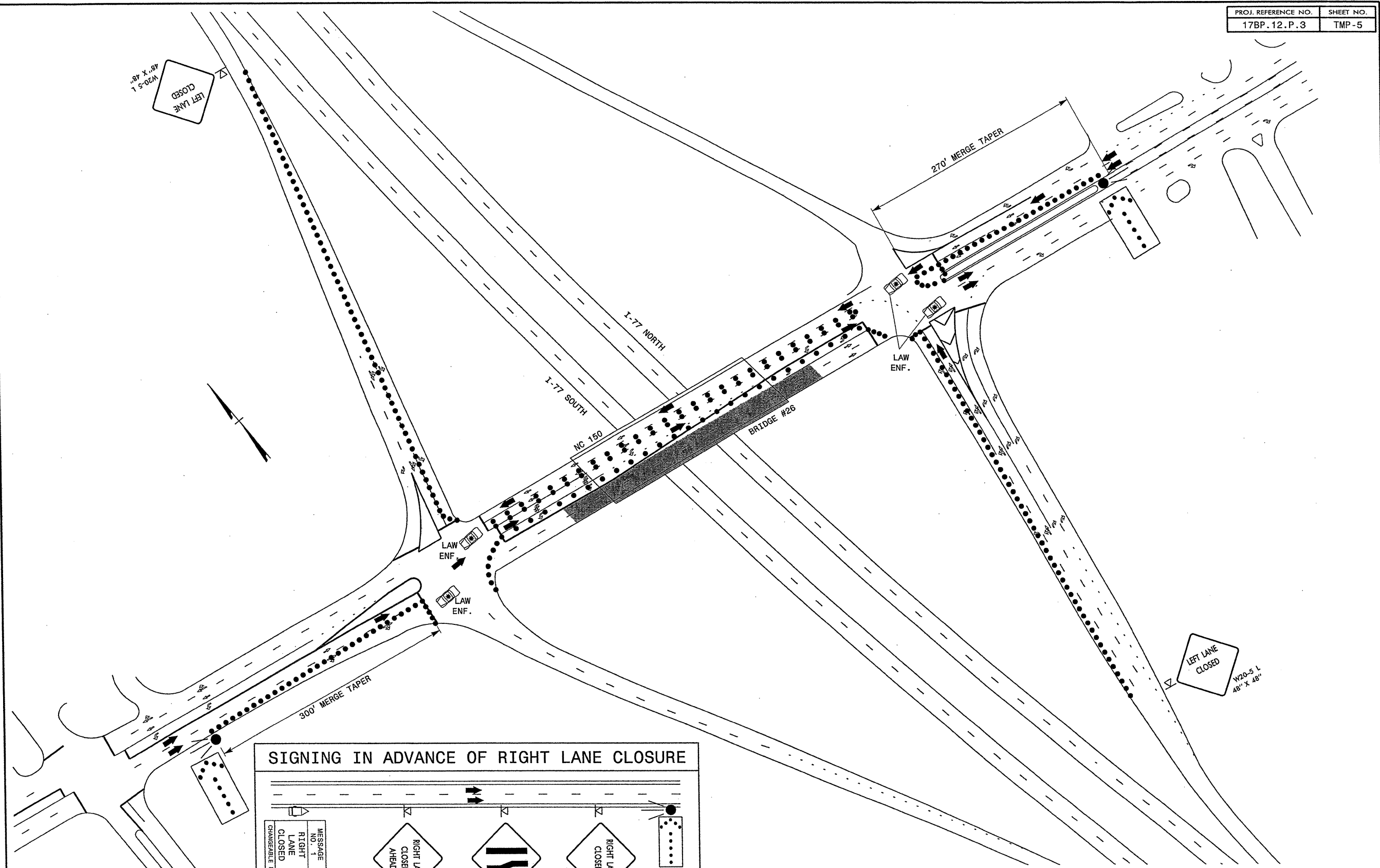
SIGNING IN ADVANCE OF LEFT LANE CLOSURE



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	SEAL <i>Patsy L. Watson</i> 8/13/12		

2/10/2012
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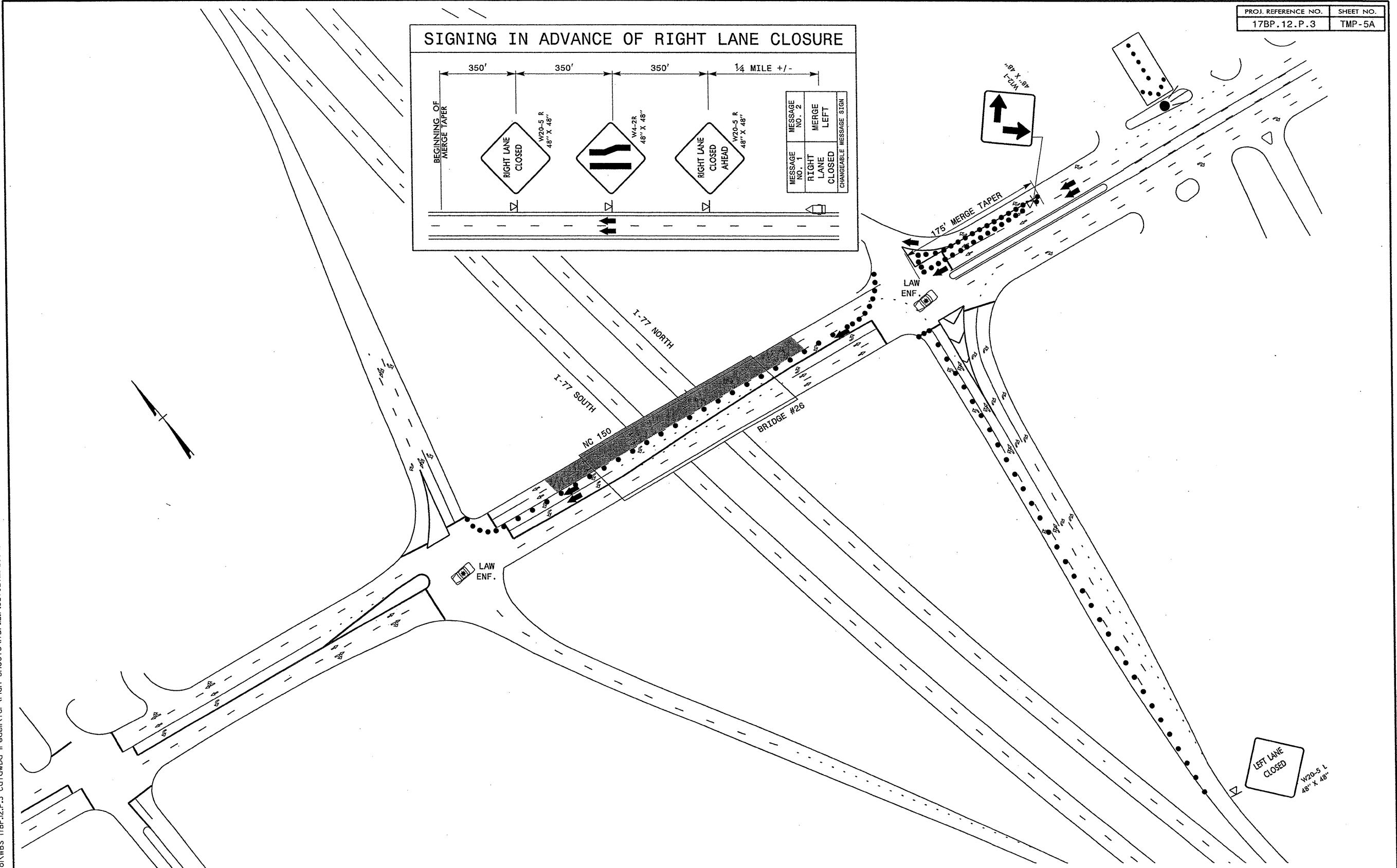
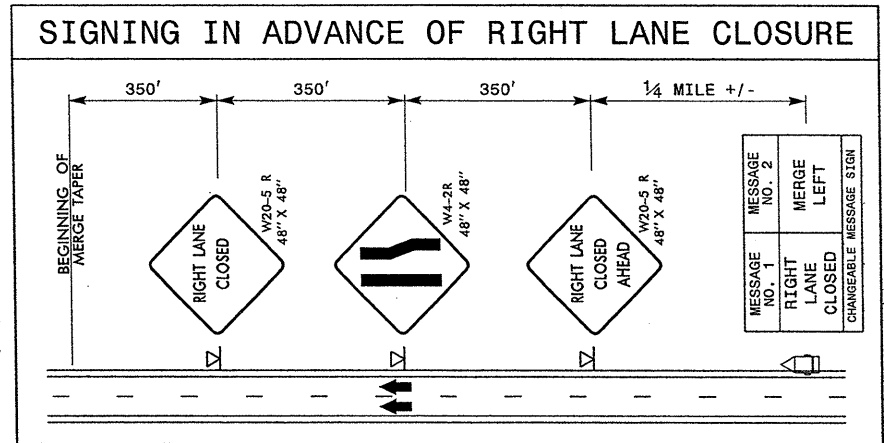
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APPROVED: _____ DATE: _____

SEAL

IREDELL CO. BRIDGE #26

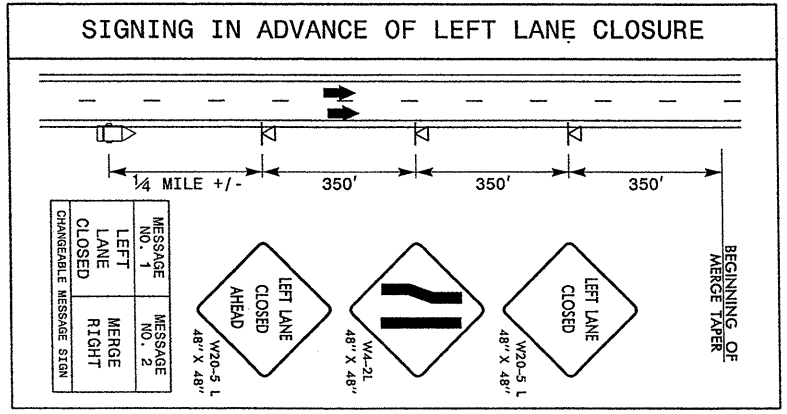
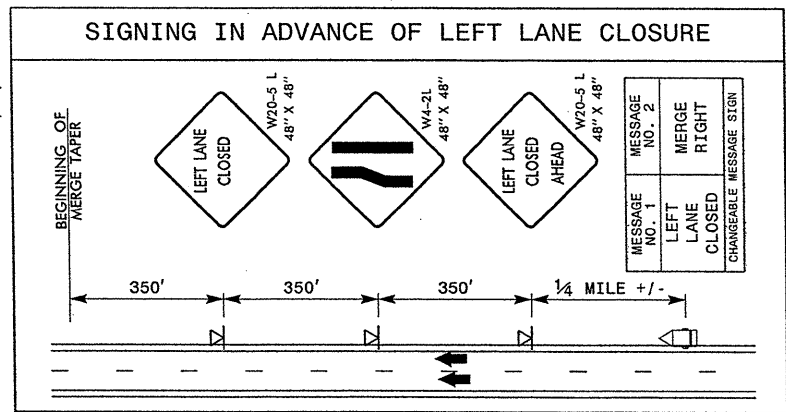
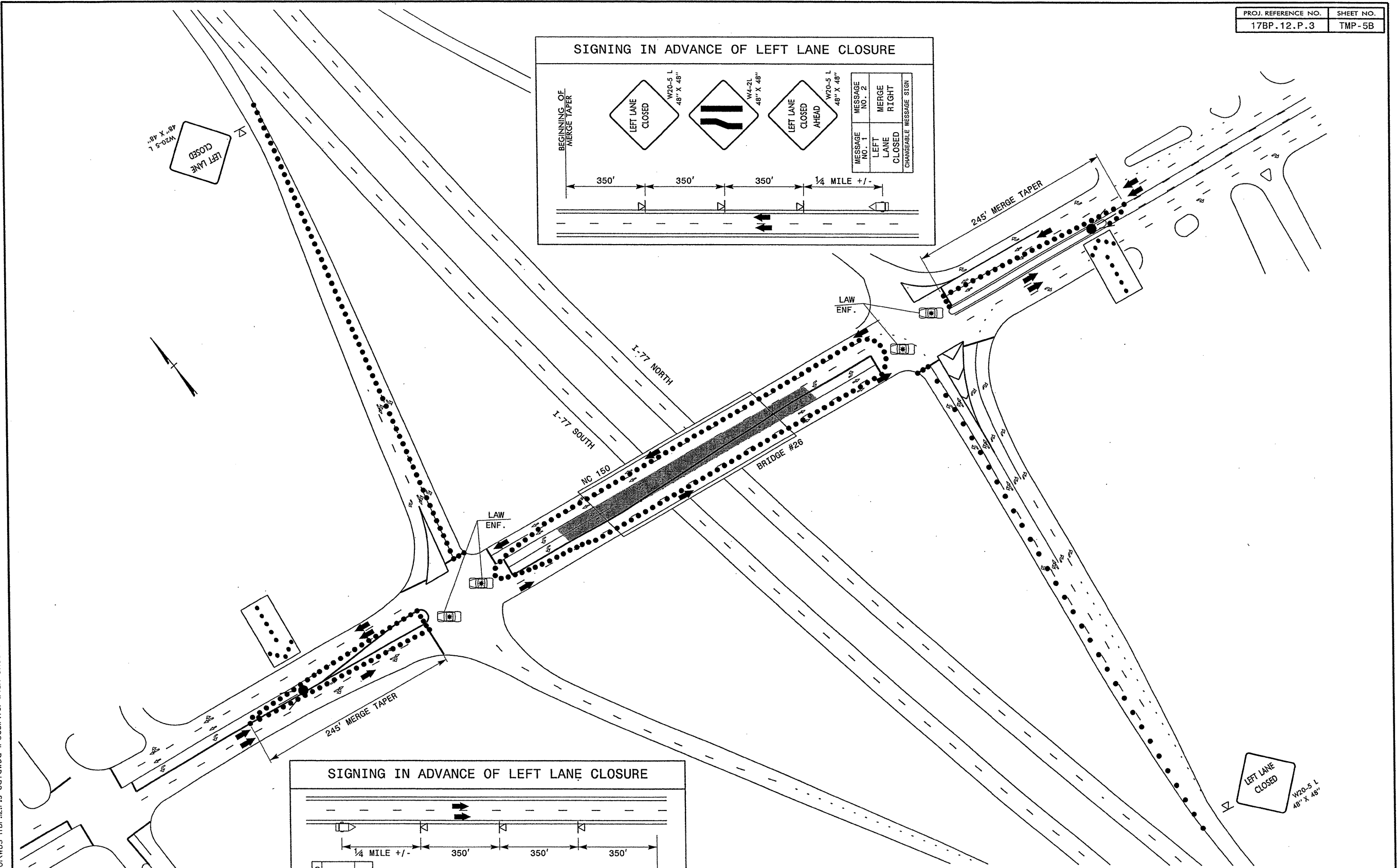
NC 150 EASTBOUND
RIGHT LANE WORK AREA



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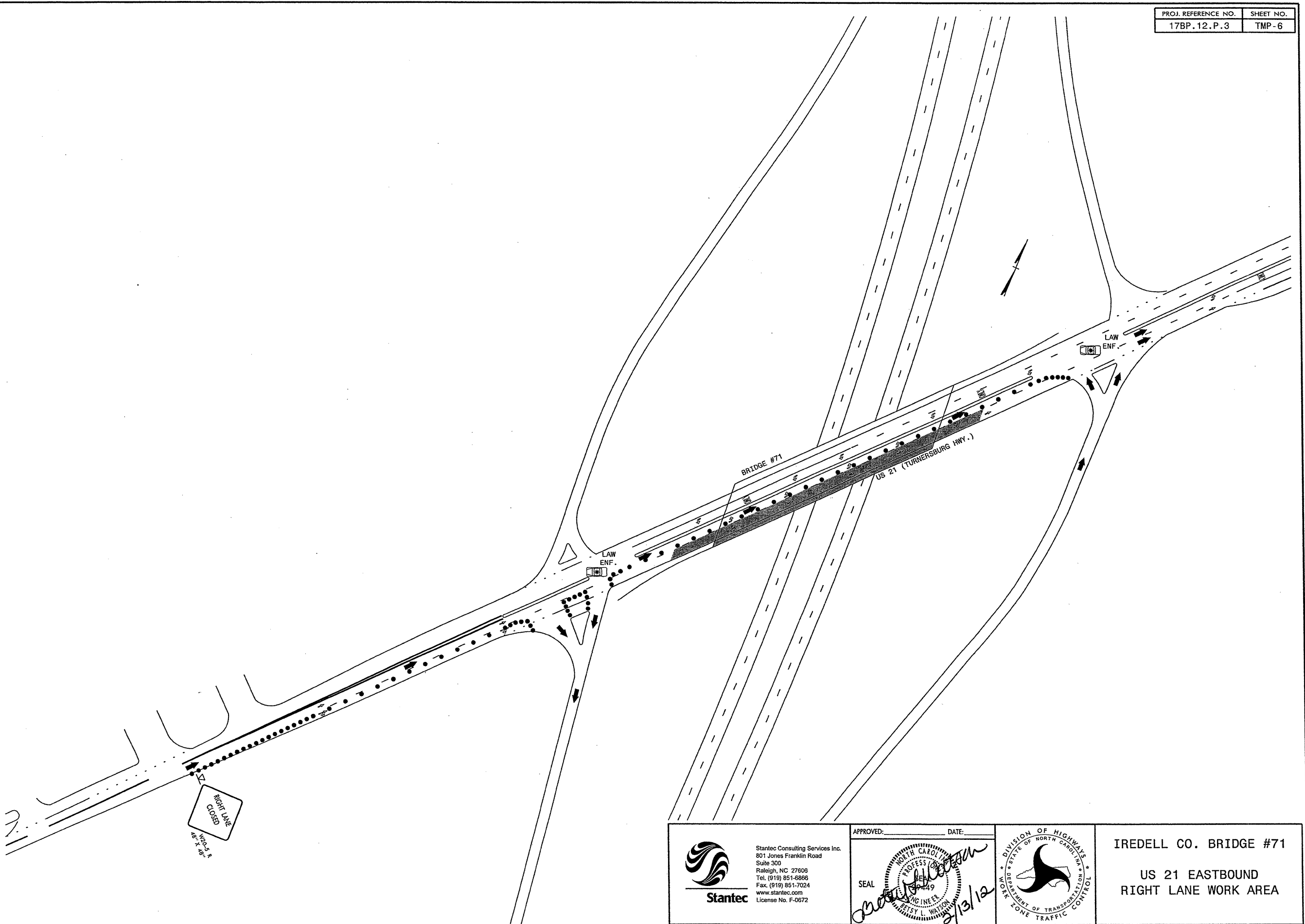
Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ SEAL <i>Nancy L. Watson</i> 2/13/12	DIVISION OF HIGHWAYS NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	IREDELL CO. BRIDGE #26 NC 150 WESTBOUND RIGHT LANE WORK AREA
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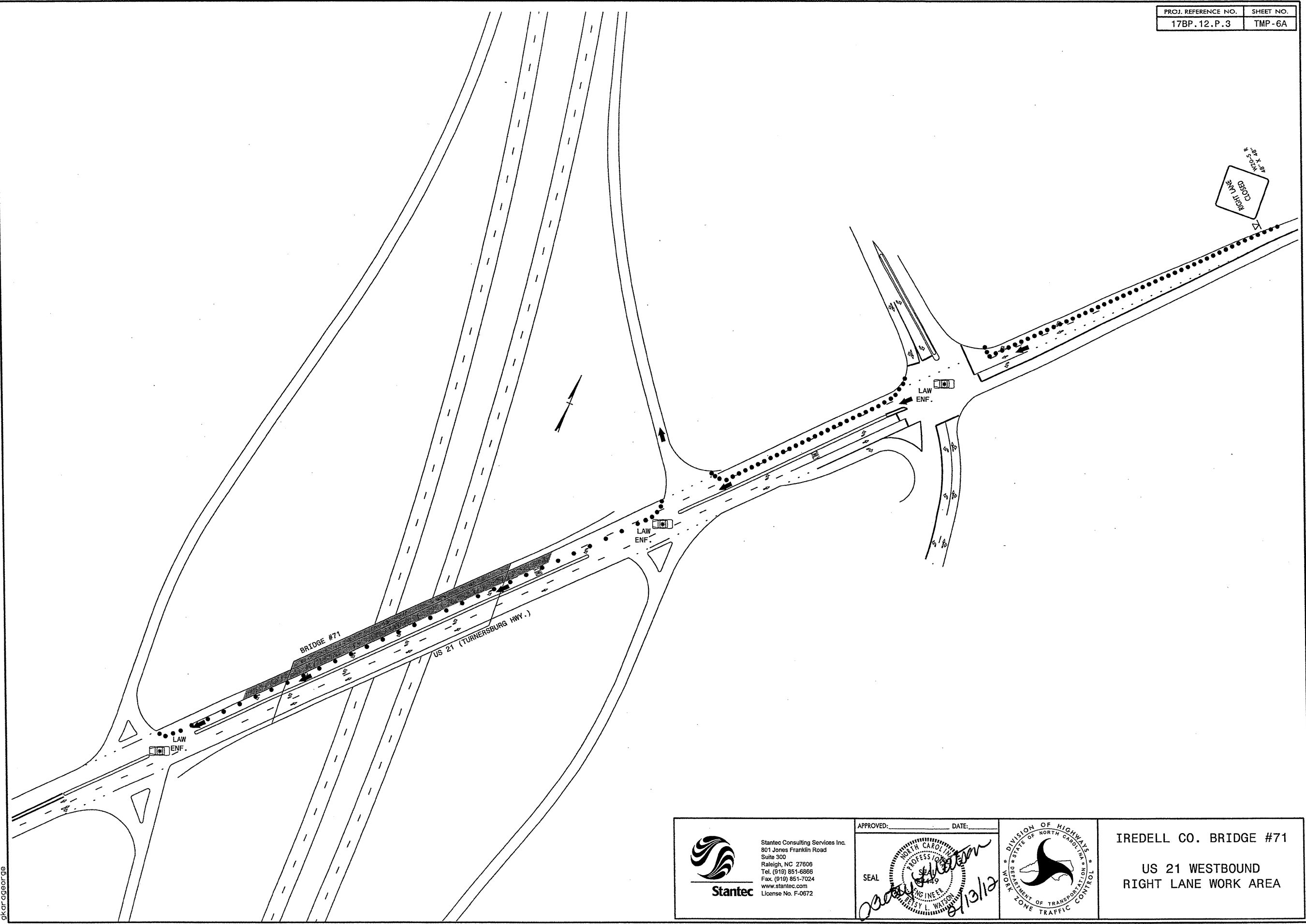
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	SEAL: <i>[Signature]</i> 2/13/12		


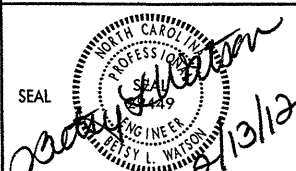
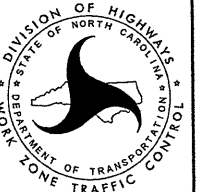
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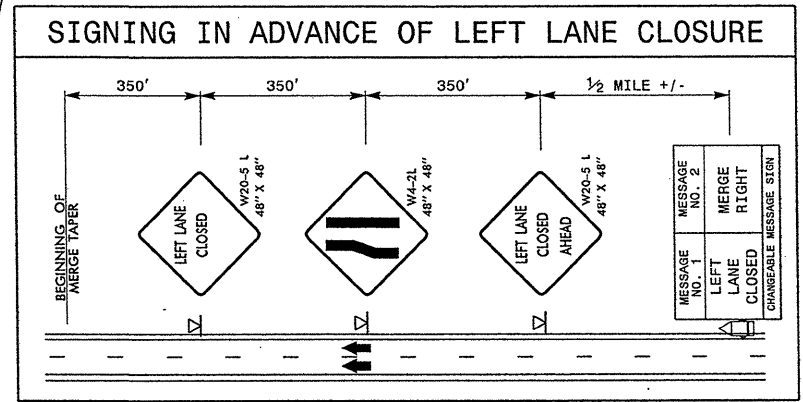


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	WORK ZONE TRAFFIC CONTROL		

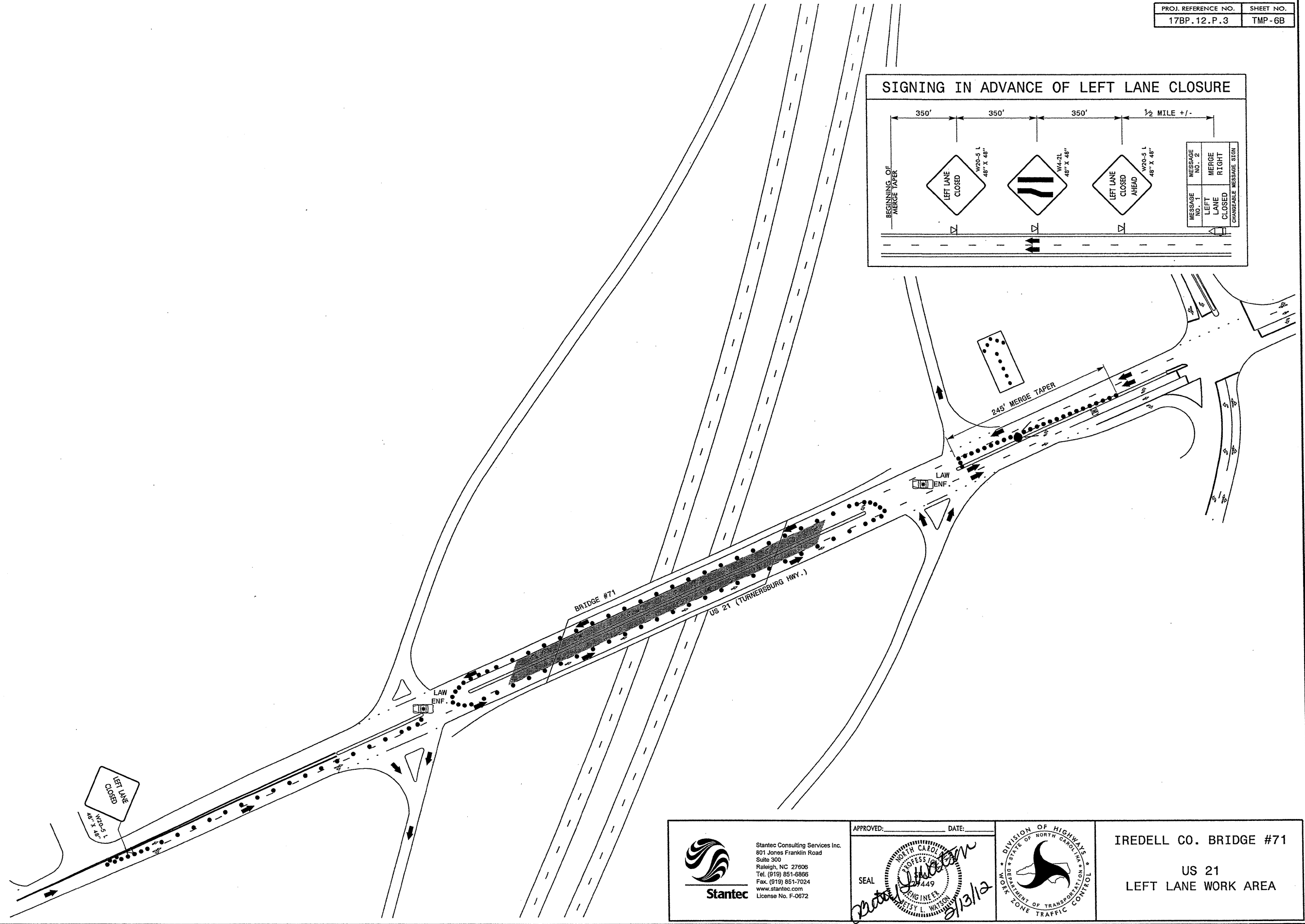
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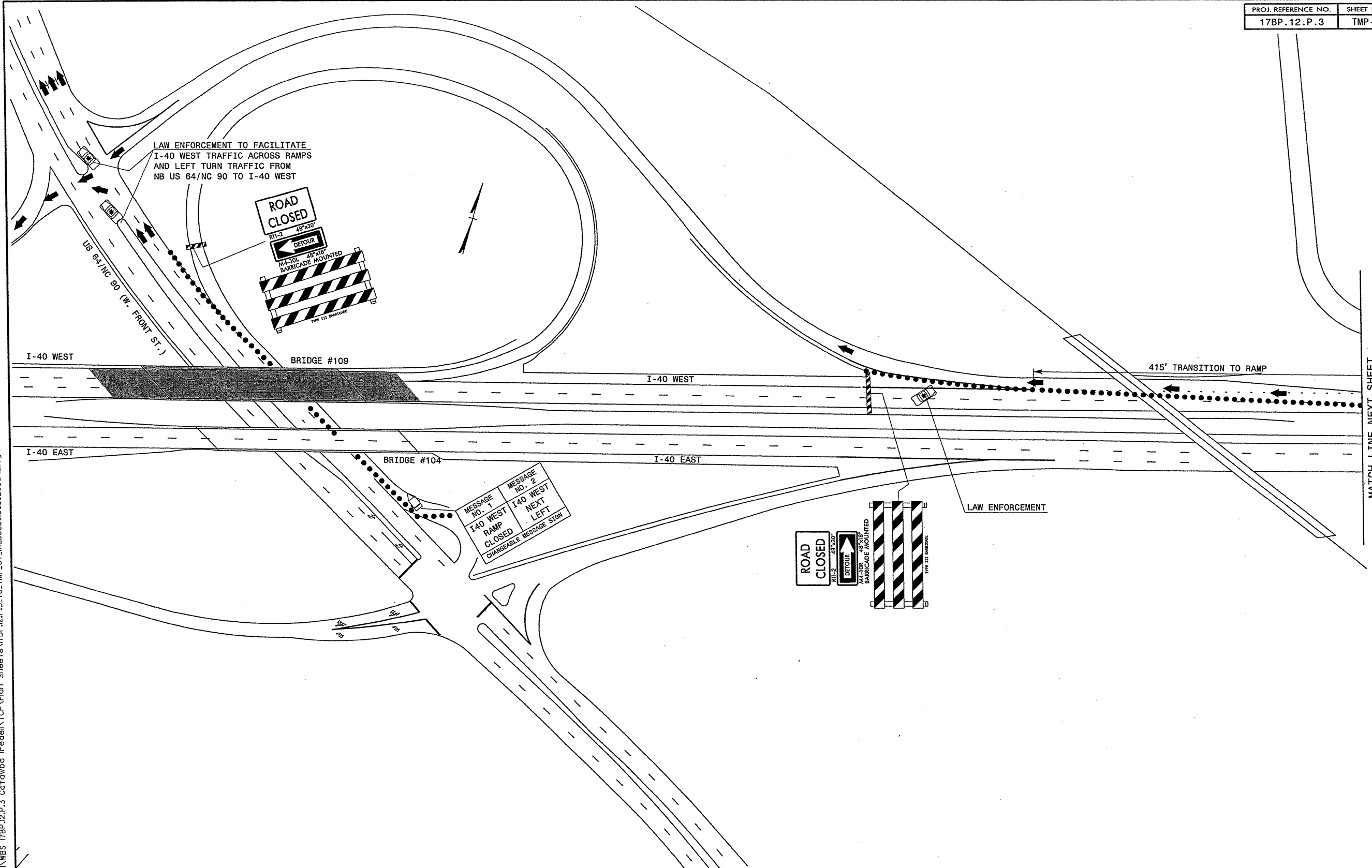
 Stantec	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ 		IREDELL CO. BRIDGE #71 US 21 WESTBOUND RIGHT LANE WORK AREA
	APPROVED: _____ DATE: _____			



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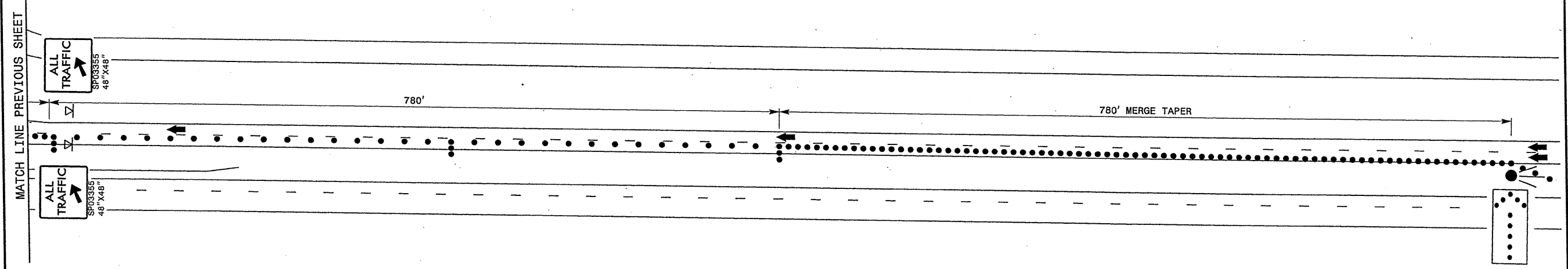
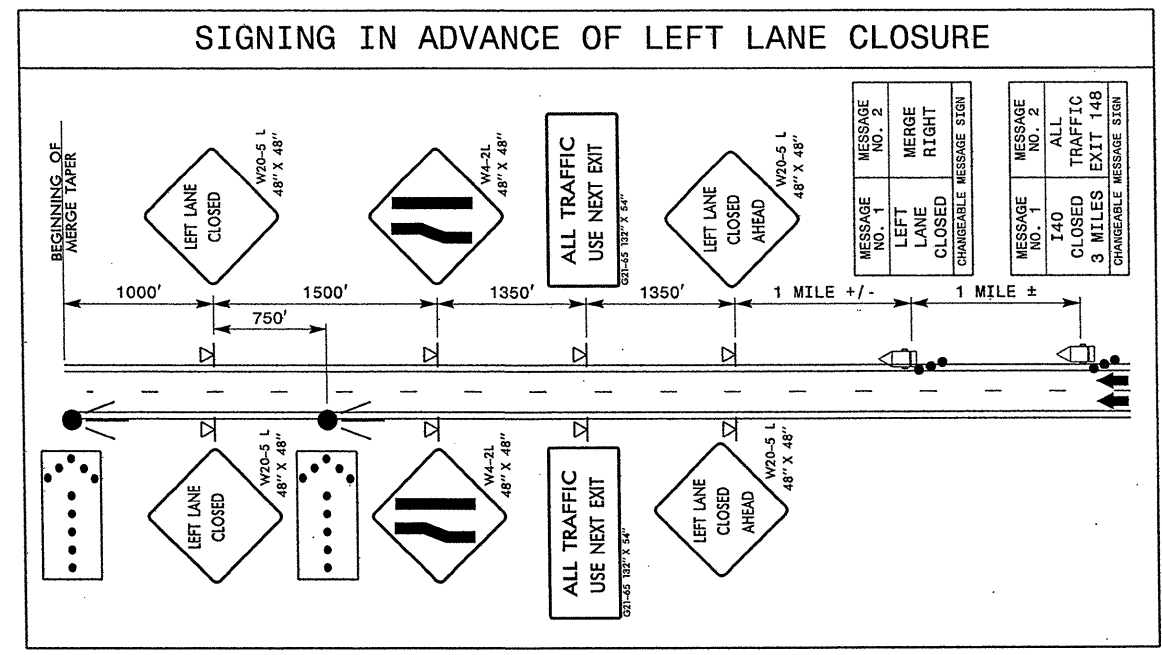


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	<p>SEAL</p> <p><i>Wesley L. Watson</i> 2/13/12</p>		



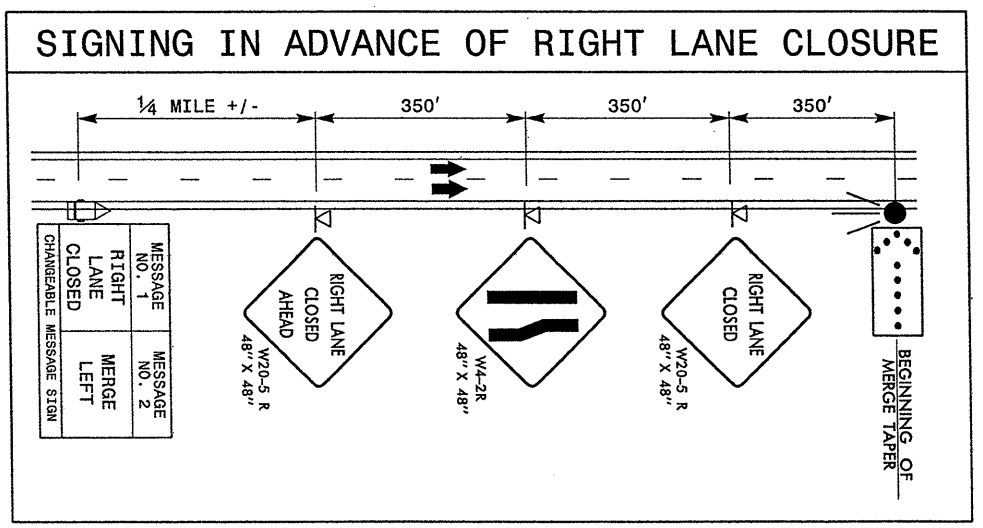
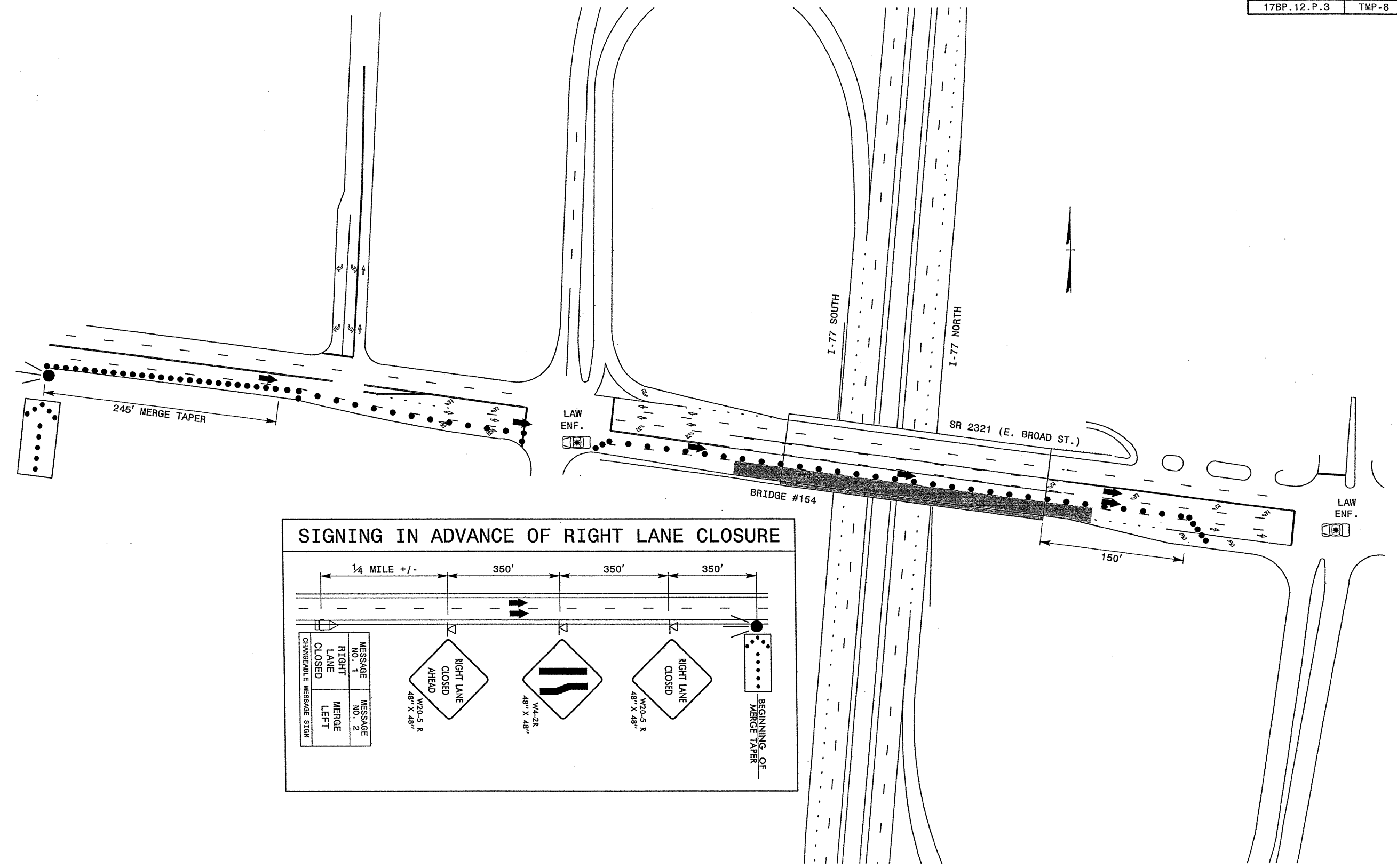
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 okcar@george

<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 		IREDELL CO. BRIDGE #109 I-40 WEST ROAD CLOSURE
	SEAL: <i>Betsy L. Watson</i> 2/13/12		



2/10/2012
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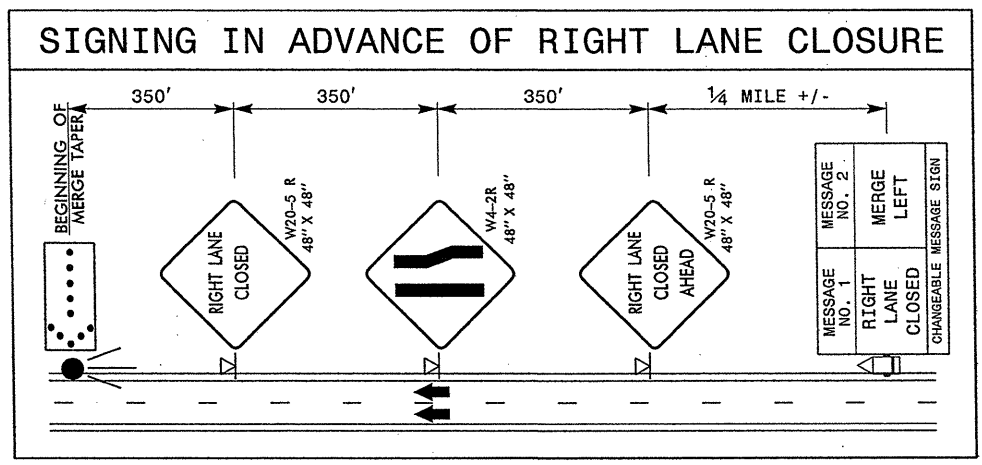
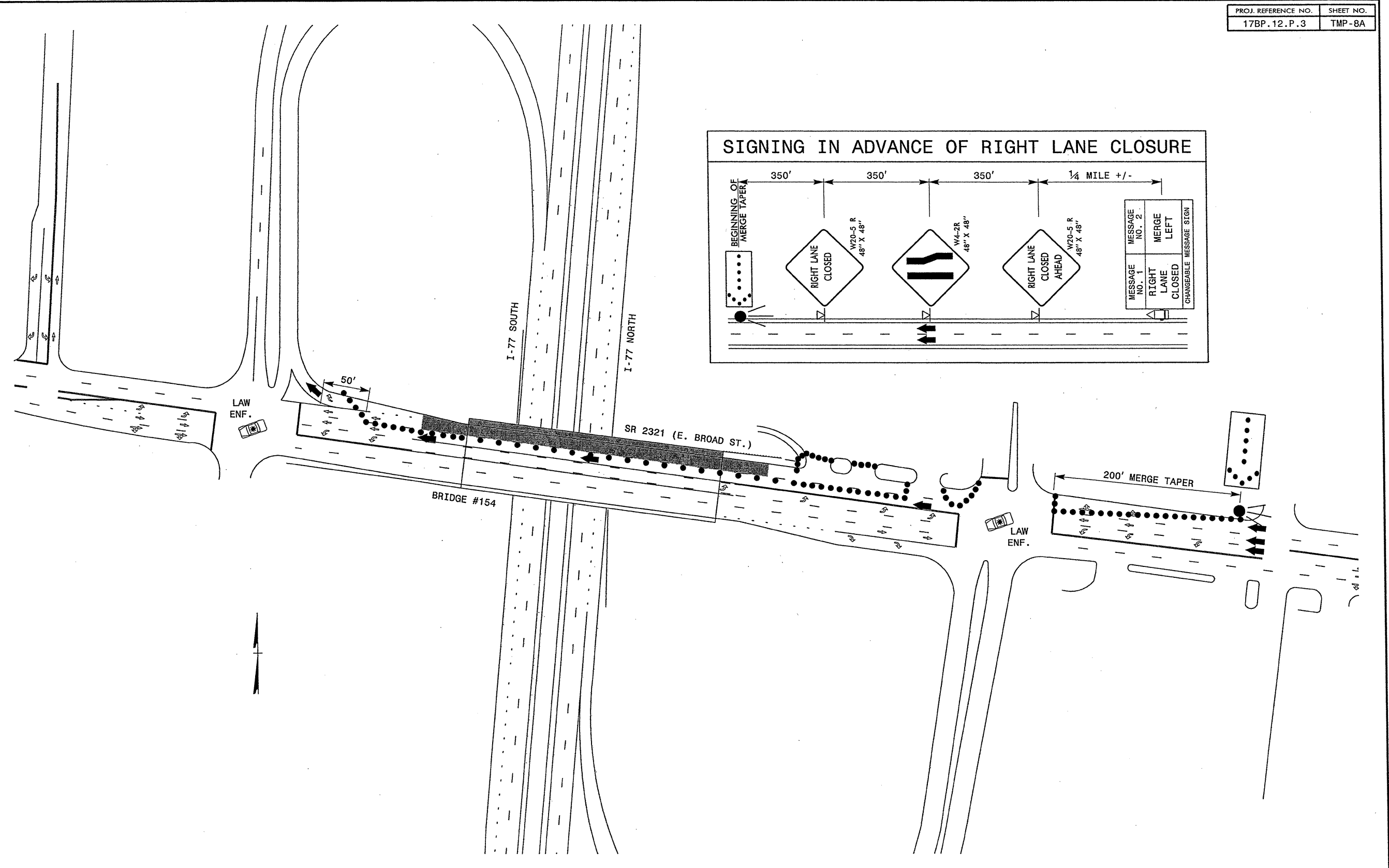
<p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-8866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	<p>DIVISION OF HIGHWAYS NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>IREDELL CO. BRIDGE #109</p> <p>I-40 WEST ROAD CLOSURE</p>
	SEAL <i>Kristy L. Watson</i> 2/13/12		



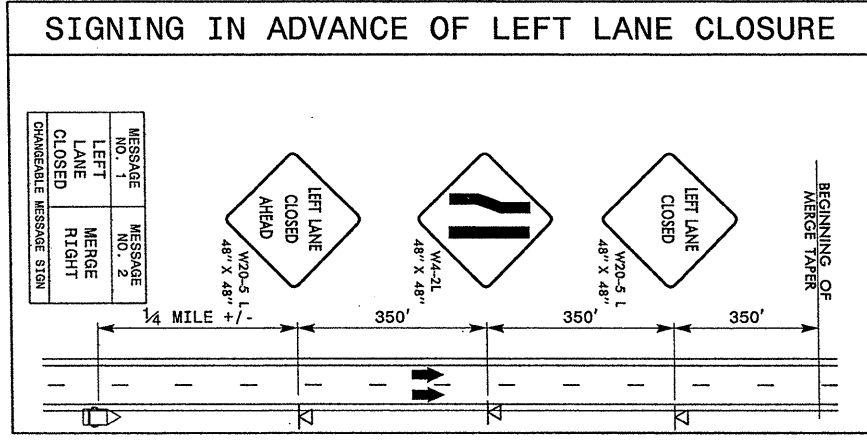
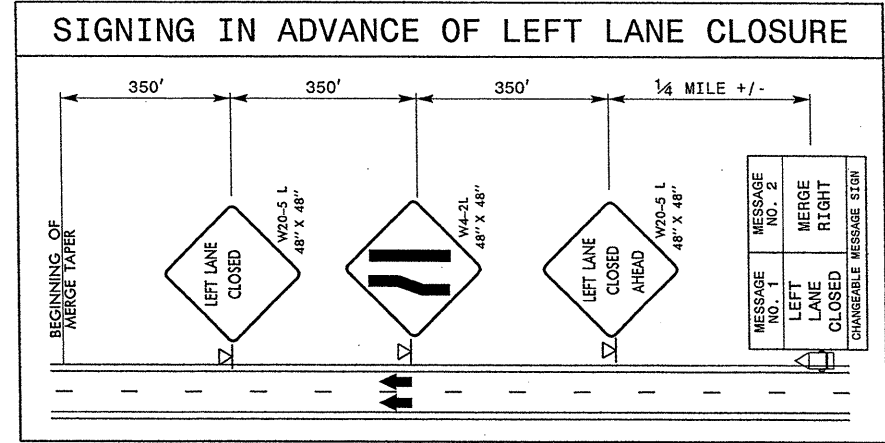
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 Stantec	Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27609 Tel: (919) 851-6866 Fax: (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ SEAL	 IREDELL CO. BRIDGE #154 SR 2321 EASTBOUND RIGHT LANE WORK AREA
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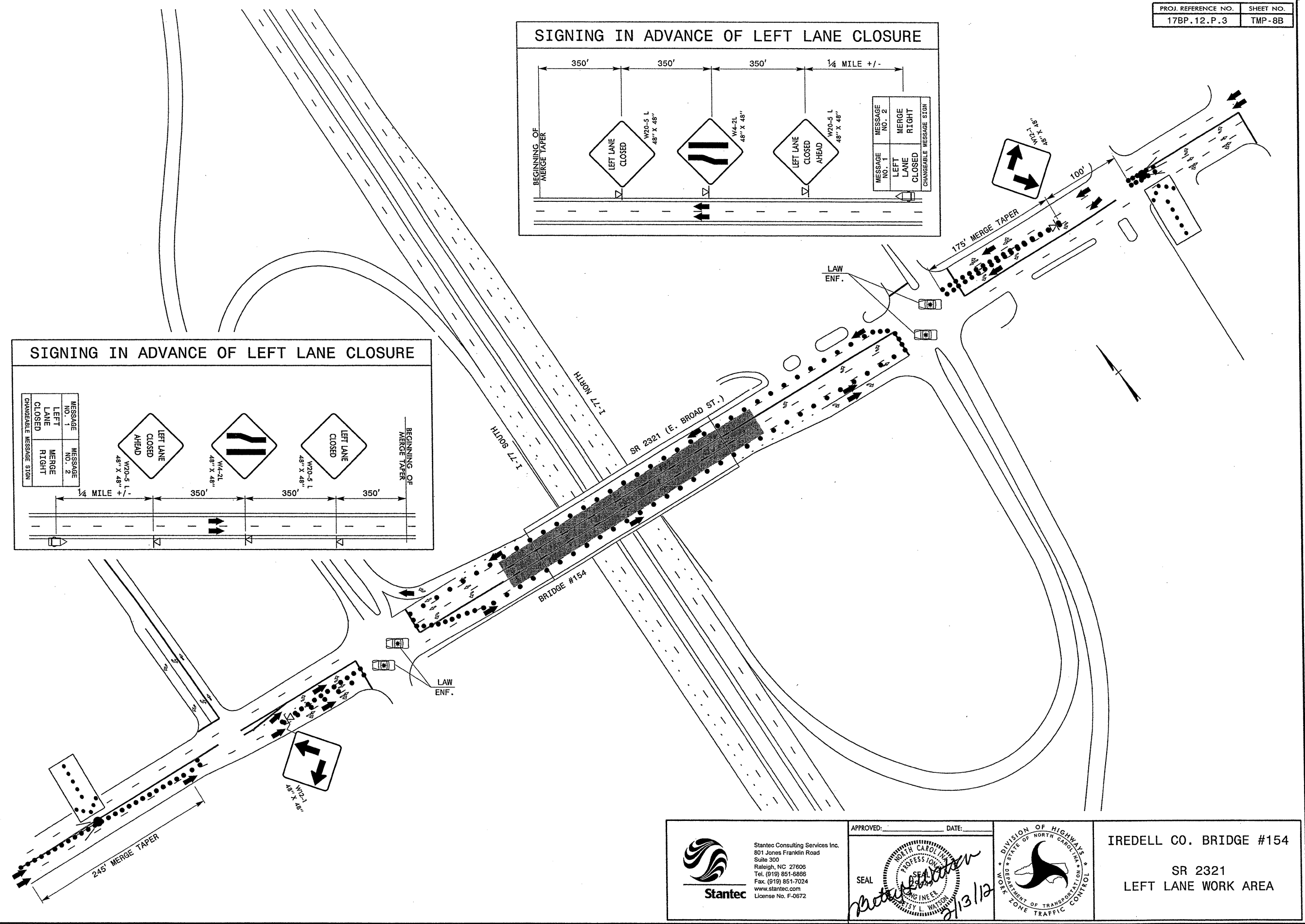
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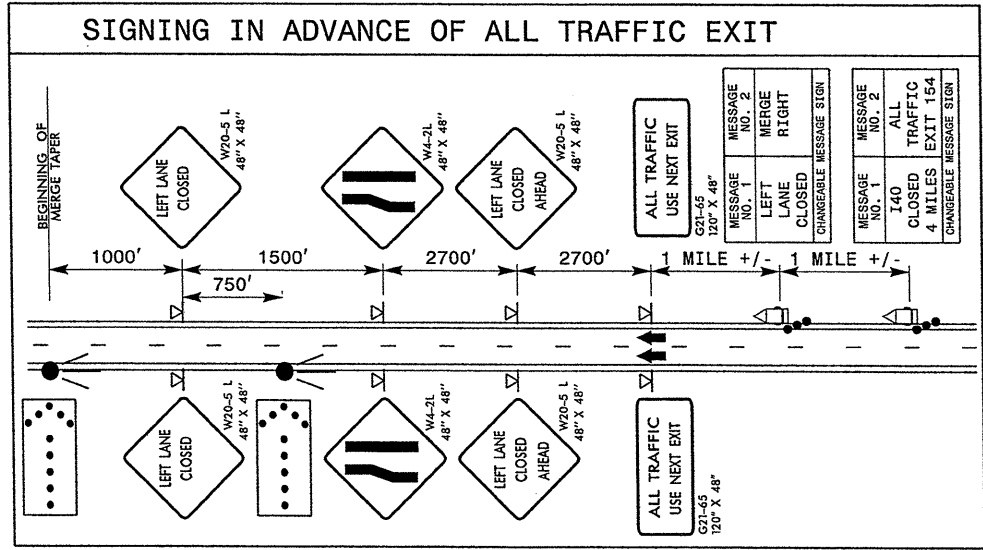
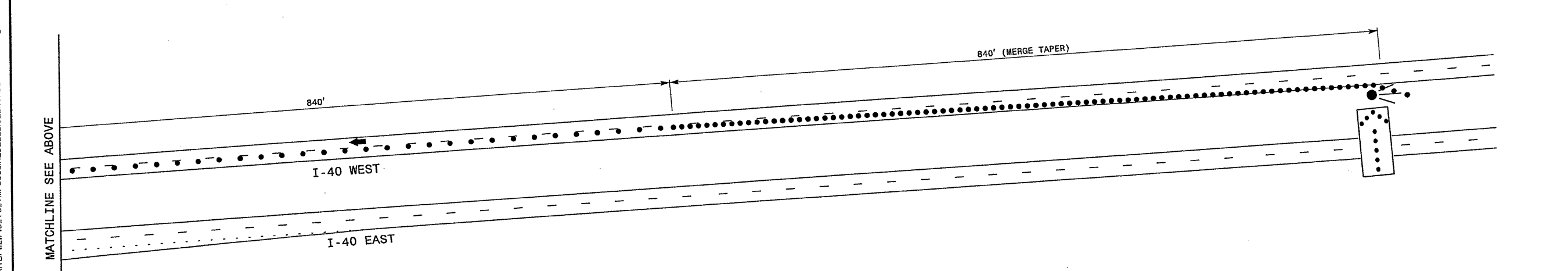
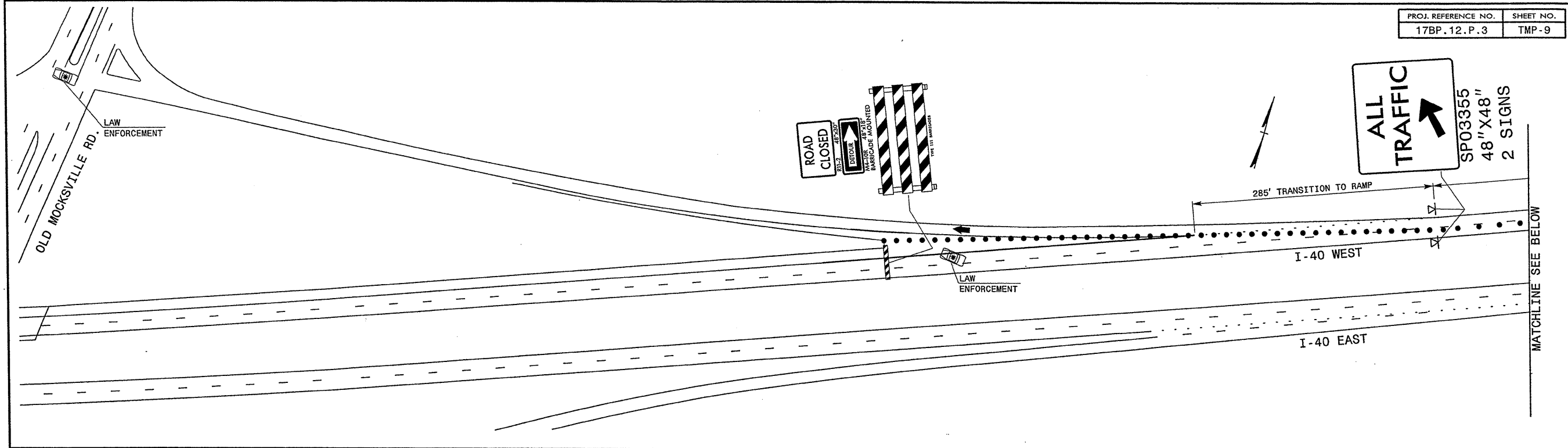
Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672	APPROVED: _____ DATE: _____ SEAL <i>Betsy L. Watson</i> 2/13/12	DIVISION OF HIGHWAYS NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	IREDELL CO. BRIDGE #154 SR 2321 WESTBOUND RIGHT LANE WORK AREA
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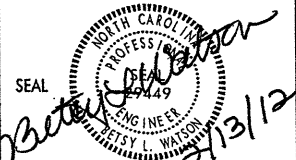

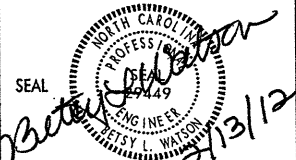
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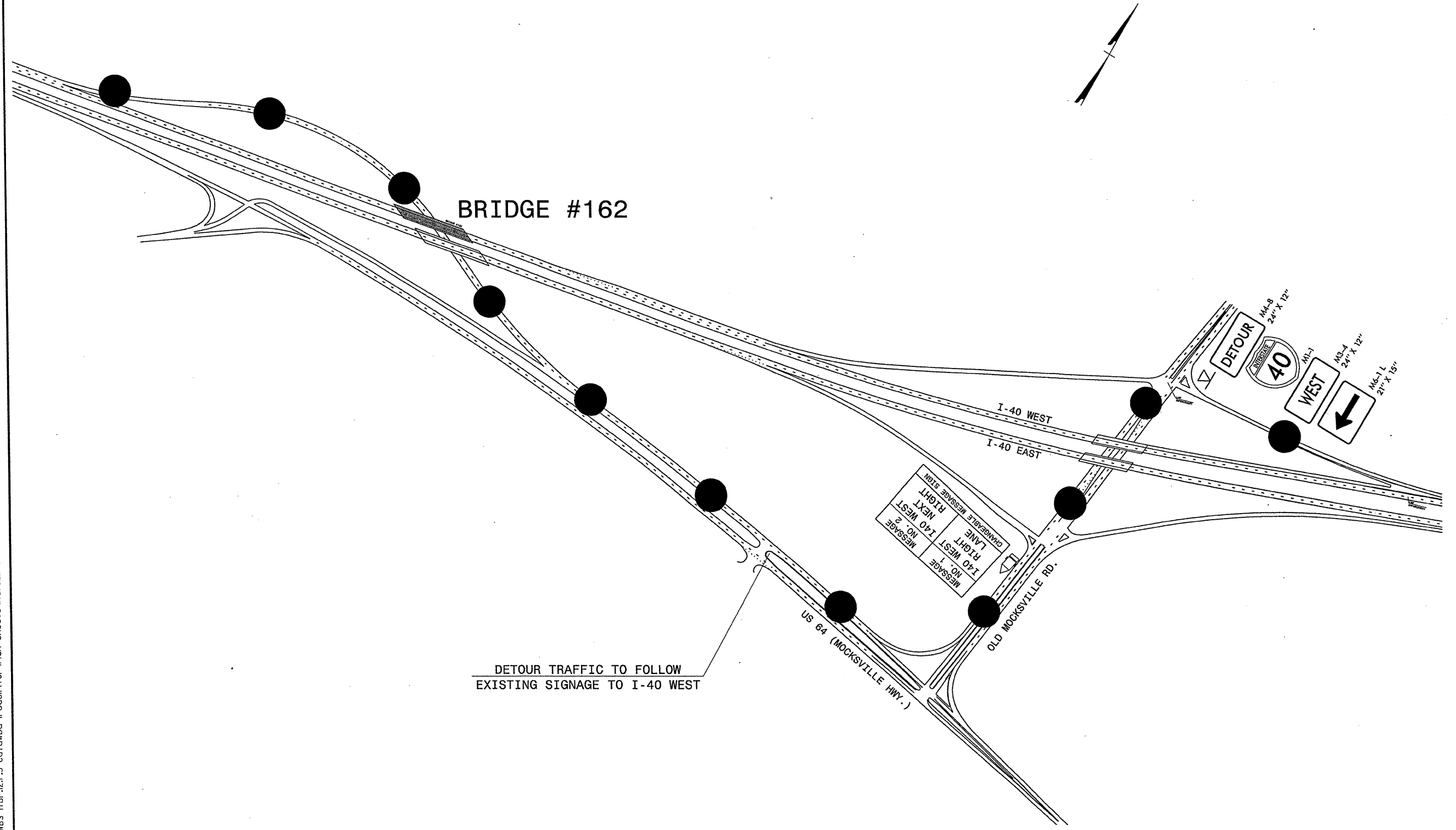


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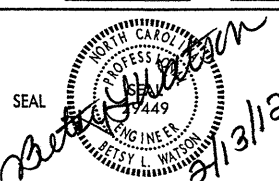

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 Stantec Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0572	APPROVED: _____ DATE: _____ 		IREDELL CO. BRIDGE #162 I-40 WEST ROAD CLOSURE
	SEAL 		



DETOUR TRAFFIC TO FOLLOW
EXISTING SIGNAGE TO I-40 WEST

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 <p>Stantec Consulting Services Inc. 801 Jones Franklin Road Suite 300 Raleigh, NC 27606 Tel. (919) 851-6866 Fax. (919) 851-7024 www.stantec.com License No. F-0672</p>	APPROVED: _____ DATE: _____ 	 <p>DIVISION OF HIGHWAYS DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL</p>	<p>IREDELL CO. BRIDGE #162 I-40 WEST DETOUR ROUTE</p>
	<p>8/13/12</p>		

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF:		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	---	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN	-----	375 LBS. PER SQ. IN.
OF TIMBER		
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT.
		(MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB. THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE CUT TO CUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINISH AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING WILL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN